

Project title	An economic evaluation of the impact of the AHDB Order 2008 on the UK tree fruit sector
Project number:	TF 188
Project leader:	Sean Rickard Cranfield University Bedfordshire MK43 0AL
Report:	Final report, October 2009
Previous report	None
Key staff:	Sean Rickard
Location of project:	Cranfield University
Project coordinator:	
Date project commenced:	1 March 2009
Date project completed (or expected completion date):	31 October 2009
Key words:	Apple and pear levy, economic evaluation, tree fruit, HDC levy

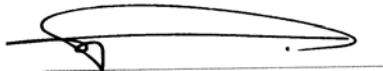
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AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

Sean Rickard
Project Leader
Cranfield University



Signature Date 20 October 2009

Signature Date

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Executive Summary

The switch from an area based levy to a value based levy system has proved particularly unpopular with larger scale apple and pear growers who consider the new system inequitable. This is unfortunate as in principle a value based levy system is more equitable than an area based system and it brings apple and pear growers in line with other horticultural sectors where levy payments are calculated as a small proportion of a holding's sales revenue. The new system is in principle more equitable because it better reflects the value of what is being produced, which is itself influenced by the employment of the revenue generated by the levy to improve efficiency and competitiveness. An area based levy makes no allowance for variations in the value of different crops and the levy payments do not rise and fall with annual fluctuations in sales revenue. Moreover, to the extent that rising productivity reduces the area of apple and pear orchards so the base for an area levy is steadily declining over time.

The primary cause of the unhappiness on the part of apple and pear growers is not the value based system *per se* but rather the fact that its introduction was accompanied by a substantial increase in the threshold at which commercial holdings become liable to pay a levy. Under the previous system only growers with less than two hectares of commercial orchards were exempt, which in terms of turnover is approximately equivalent to £22,000 at current prices. The switch to the value based system brought with it a threshold of £60,000, after allowing for permissible deductions. The effect of which has been to increase the number of apple and pear growers not paying a levy from 17 to 53 per cent. The fact that the exempt holdings tend to be small and probably account for little more than 10 per cent of production does not address the concern that all who benefit from the employment of the funds raised by the levy should contribute. The argument that the apple and pear sector is now aligned with the rest of horticulture is not a valid counter to the sense of injustice felt by growers paying the levy.

A feature of the value based levy system is that certain deductions from gross sales revenue are allowed. These specific deductions are in principle justified by the fact that many apple and pear enterprises, indeed, horticultural enterprises generally, engage in value adding activities. The deductions are designed to ensure that the basis for the levy is the harvest or commodity value of the crop. But they are another source of inequality, they increase the time and effort that growers must commit to calculating their levy and they greatly complicate the AHDB administrators' role in ensuring that the correct levy has been paid. A striking feature of the new, value based system for the apple and pear sector is that net turnover (i.e. sales revenue less permissible deductions) for individual holdings is not, as might be expected, distributed evenly around the average value of net turnover for the sector. There is a distinct downward bias suggesting that on many holdings either gross turnover is underestimated and/or permissible deductions are over estimated. A number of reasons can be advanced for this situation, including confusion on the part of growers as to what is a permissible deduction, but cheating is also a possible explanation. The scope afforded by permissible deductions for such 'game playing' not only provides disgruntled growers with a means to respond to the injustice, as they see it, of the new system but also such behaviour is itself a source of inequality, as are the limits on what can be deducted. This last point is best illustrated by the

allowance of a 50 per cent reduction on the sales value of direct retail sales. In principle this reflects the value adding activity of retailing but a grower who has invested heavily in marketing and/or value enhancing production activities has no scope for similar deductions.

This report suggests a three pronged solution to the issues raised by the new value based system for the apple and pear sector. There is no reason in principle why what follows could not be applied generally throughout the horticultural sector but the focus here is to overcome the unpopularity of the new system amongst apple and pear growers whilst reducing its complexity for both growers and the administering authorities. The three elements of the proposed solution are:

- Equity demands a much lower threshold and a reduction in the levy threshold to £20,000 is proposed. This is broadly in line with the previous area based levy threshold of two hectares and the levy raised would exceed the costs of collection. In the absence of any other changes the effect of this would be to require practically all commercial apple and pear growers to pay a levy and the additional revenue raised would be significantly in excess of £30,000, an increase of at least 10%.
- The present system of permissible deductions, while logical, is also a source of inequality. Deductions cannot be made more equitable without greatly increasing the costs and complexity of the system – for both growers and administrators – and therefore the alternative of bringing the system of permissible deductions to an end is proposed. From the perspective of growers this would reduce the time and effort that they have to devote to calculating their levies, it would remove much of the scope that exists for ‘game-playing’ and the system would become more transparent and equitable. From the perspective of the authorities it would reduce the costs and greatly simplify the administration
- In return for removing all deductions the levy rate could and should be lowered. Removing all deductions has the attraction of simplification but it would not be acceptable to take such action and maintain the levy rate at 0.5 per cent, nor would it be necessary. On average the permissible deductions amount to 20 per cent of gross turnover so the effect of removing them would be to significantly increase the revenue raised by the levy. If the aim is to generate a similar total levy income to that raised in 2008 then in compensation for removing the system of permissible deductions the levy rate could be reduced to 0.35 per cent.

If this proposed three pronged solution is accepted it has the potential to:

- remove the widespread belief amongst larger apple and pear growers that the current system is inequitable;
- bring into the levy system the vast majority of commercial apple and pear growers;
- end much of the scope growers have to exaggerate permissible deductions;
- reduce the costs of administering the apple and pear levy system; and
- provide greater certainty and stability for the annual level of funds raised by the levy.

Introduction

The switch from a levy system based on area to one based on sales revenue for UK commercial apple and pear growers has proved controversial with that proportion of the growers who now bear the cost of the levy, and particularly with those who have seen their payments increase. The switch to a sales revenue based system aligned the apple and pear sector with the majority of UK horticultural levy payers but after its first year of operation it is appropriate to take stock. The information available from the first year provides an opportunity to examine the implications for not only apple and pear growers but also the Agricultural and Horticultural Development Board (AHDB) as the administrators. Consequently, the AHDB commissioned this independent economic evaluation of the new levy system with the following brief:

The Overall Aim of the Project

- To analyse the effect of the change in the levy collection method for apples and pears on the total levy income for the fruit tree sector;
- To analyse the effect of the change to the levy collection method for apple and pears for tree fruit growers; and
- To clarify whether the change from an area based method of levy collection to a turnover based system for apple and pear growers is equitable for the horticultural industry as a whole.

More specifically the objectives of the project are:

- To compare the findings of the Reading University Report with the raw data for each year during the period 2002-08 with the levy payments made by apple and pear growers;
- To produce a detailed analysis of the effect of the changes including the number of growers whose levy has decreased/increased by small, medium, large and significant amounts and the potential reasons for this;
- Determine the mean revenue per tonne for a number of key horticultural crops such as apples, carrots, onions, tomatoes, strawberries etc in 1989-92 and for the period 2003-08;
- Compare the levy payments from businesses of similar levels of turnover (eg, £5m, £1m and £0.5m of the same key crops in 1989-92 and for the period 2003-08);
- Analyse the effect of annual variations in cropping levels and returns over the five years up to 2008 for the apple and pear levy if it had been turnover based during this period;
- Compare the key input costs for the same key crops for the period 2002-2008;
- Provide an opinion on the equitability of the change in levy system under the new legislation on apple, pear and stone fruit growers and the UK horticultural industry as a whole.

This report is primarily concerned with the payment of levies by commercial apple and pear growers in the UK within the context of the levy arrangements for the horticultural industry as a whole. For this report apple and pear growers are defined to include only

the producers of dessert apples, culinary apples and pears; that is growers of cider apples and perry pears, together with commercial growers of plums, cherries and nuts, are treated as a separate group.

It is not the purpose of this report to consider the merits of a statutory levy. Its main focus, as set out above in the aims, is to analyse the new sales revenue based levy for apple and pear growers and to compare it with the previous area based system. On the basis of the findings of this comparison this report will identify issues that have arisen in implementing the new system and it will further examine ways in which the new sales revenue system might be improved. The Radcliffe Report¹ (superscripts refer to the references in Appendix 1) succinctly summarised the need for a statutory levy throughout the various sectors of the agricultural industry on the basis of *market failure*. The particular source of market failure that the Radcliffe Report identified arises from the atomistic structure of the agricultural industry; that is, the industry is composed of a large number of small businesses. Such a structure results in individual businesses being too small to fund the R&D activities necessary to continuously improve efficiency and competitiveness. In an atomistic industry not only do R&D activities need to be funded collectively but also these activities cannot be undertaken voluntarily because of the *free-rider* problem. This arises because in practice it is difficult to restrict the benefits of the R&D to only those producers who have provided the funding, thus individuals have little incentive to contribute to the costs.

By any yardstick commercial orchards are an atomistic industry, or more correctly, an atomistic industrial sector. Details from the 2007 June census² recorded that there were 1,560 holdings with commercial orchards in England – the overwhelming bulk of the UK's orchards are in England; indeed, in Southern England – accounting for a total area of 18,126 hectares. Apples and pears, as defined in this report, are estimated to account for some 56 per cent of the area of commercial orchards, that is, almost 10,206 hectares.

What follows is divided into three sections. The first, Section I, starts by analysing the principle of an area based system for setting levies, placing particular emphasis on equity. It then goes on to examine the principles underlying the new sales revenue based system and to compare the broad outcomes of the two systems in terms of revenue generation, efficiency and equity. The section concludes that on balance a levy system based on sales revenue – regardless of whether we are considering apples and pears or horticulture as a whole – is in principle both more efficient and more equitable than an area based system.

Section II focuses on two particular features of the new system; namely, the levy threshold and the system of deductions allowed against sales revenue. Again the analysis is primarily concerned with equity and efficiency. A particular focus is the fact that the high threshold results in a majority of apple and pear growers not paying a levy. The system of deductions is also examined to test their logic, their accuracy and equity. The section concludes that both the height of the threshold and the system of deductions are inefficient and inequitable; a conclusion that has implications beyond the apples and pears sector.

Section III outlines proposed changes to the height of the threshold and also to the system of deductions. These proposals are designed to improve the equity of the levy system and also make it less complex and more efficient.

I: The Impact of the new levy

As noted in the Introduction, the switch from an area based levy to a turnover based levy has proved unpopular with larger scale apple and pear growers. It is however, important in examining the implications of the switch to separate the principle of charging a levy on turnover rather than area from the particular methods and mechanisms employed in determining who pays the new levy and how much. This section analyses the practical implications for the apple and pear sector of charging a levy on the basis of turnover as compared to area. The next section will examine the implications of the methods and mechanisms employed

The starting point for examining the payment of a levy is the purpose to which the funds will be put. The purpose of the apple and pear statutory levy is quite simply to ensure that the sector has at its disposal funding for researching and developing new knowledge, i.e. products and practices, that will enhance both the efficiency and the competitiveness of individual enterprises. Enhancing efficiency is defined here as raising productivity and lowering unit production costs. Competitiveness can be viewed as elevating the perceived value of British apples and pears in the minds of consumers. Efficiency and competitiveness are the twin pillars of a successful business. Efficiency on its own is not sufficient, the products produced must not only be aligned with demand but also in the minds of customers they must offer value at least equal to the price charged. These benefits are manifested at the level of the farm business. The successful application of new knowledge relating to efficiency and competitiveness will, all other factors remaining constant, result in an improved performance and profits for the business.

Dating back to the start of the reform of the Common Agricultural Policy (CAP) in 1992³ – itself a preparation for placing of agriculture within multilateral trade negotiations – political and academic studies have emphasised the growing threat of external competition and the need for all sectors of the agricultural industry to invest in and develop the products and practices that would enable them to survive and prosper in an era of heightened competition. The Radcliffe Report described this need as *business development* and defined it as requiring:

- support for innovation and new product development; and
- development and participation in 'quality assurance' and other schemes that can increase realised prices for existing products.

In addition to the business development pressures, agricultural businesses in particular have also been subject to increasing regulation and policies concerning the protection of the environment and the development of more sustainable business practices (see for example the Radcliffe Report, page 47). These pressures, in parallel with the business development pressures, create an underlying need for individual growers in all horticultural sectors, not just within the apple and pear sector, to have access to relevant and contemporary industry information, together with assistance in identifying and adopting the products and practices most likely to help the business cope with the mounting challenges.

It is against this background of far reaching change for both individual sectors of the agricultural industry and individual farm businesses that the Radcliffe Report firmly placed the arguments for a statutory levy. Indeed, as noted in the Introduction, a voluntary levy can never be a practical proposition in any industry or sector where the benefits of new knowledge are not only difficult to confine to those paying the levy but also where society as a whole has an interest in the rapid dissemination of such knowledge. The argument for a statutory levy is strengthened by the need to provide the organisations that undertake R&D with reasonable assurance of the continuance of sufficient funds. The discovery and development of new knowledge, i.e. products and practices, can take several years before it can be used commercially and organisations whose function is R&D must have reasonable guarantees of longer term funding.

But a statutory levy brings with it responsibilities on those imposing the levy. It is important that the funds raised by the levy are seen to be used for their intended purpose and it is also important that the burden of the levy is believed by those paying the levy to be shared equitably amongst all those who will benefit from the new knowledge that will be generated by the employment of the funds. It follows that the presumption should be, within reason, that all commercial apple and pear growers will pay a fair contribution towards the funds that will be used to their benefit. It is against this background that the two alternative levy systems are compared below.

Area based system

By definition an area based levy is paid at the level of the individual enterprise. It has, in principle, the advantage that the criterion for the levy is transparent and easily measured, hence making it is more difficult for a business that is subject to the levy to avoid or under record its fair contribution. In practice matters are not so straightforward. The checking of areas is both costly and time consuming and this is reflected in the fact that under the area based levy scheme the areas recorded by apple and pear growers were never measured independently to check their accuracy. Moreover, under recording was common as growers had a tendency to measure the area of their orchards in terms of tree hectares despite the statutory area of an orchard being defined to include not only the area of trees but also the grass alleys and headlands.

In principle an area based levy is relatively stable from one year to the next and this provides a degree of certainty to both the levy payer and the recipient of the funds raised. But in practice, an area based system suffers two major disadvantages. Firstly, if for any reason the area upon which the levy is based is declining the system will create the need to regularly revise the area rate in order to generate a stable level of funding. Secondly, and more importantly, a crude area based levy bears no relationship to the value of what is produced, making it both inequitable between growers and unresponsive to any improvement in performance that its funds are helping to secure.

We will first address the issue of a declining levy base. The influence of a mature market combined with rising yields and/or, as in the case of apples and pears, a market increasingly contested by overseas suppliers, will result in a steady decline over a period of years in the area on which the levy is based. Data set out in Table 1 is drawn from

government figures⁴, and shows that between 2001 and 2007 – the latest available data – the area of commercial orchards in the UK declined from 22,697 hectares to 18,016 hectares⁵; a reduction of 20.6 per cent. Commercial orchards are defined to include all top fruit but if attention is confined to dessert apples, culinary apples and pears the area fell from 13,758 hectares in 2001 to 10,206 - a fall of 26 per cent.

The data set out in Table 1 are a direct counter to the claimed advantage of an area based levy, that the funds raised avoid year to year fluctuations and are therefore both predictable and relatively stable. As observed above, there must be a high degree of certainty that sufficient funds will be available over a period of years and this is compromised if the area falls steadily. Using the data shown in Table 1 a levy based on the area of orchards producing dessert apples, culinary apples and pears would have needed to be increased by 35 per cent between 2001 and 2007 in order to generate a constant level of funds and this is before taking inflation into account.

Table 1. Orchard areas in the UK

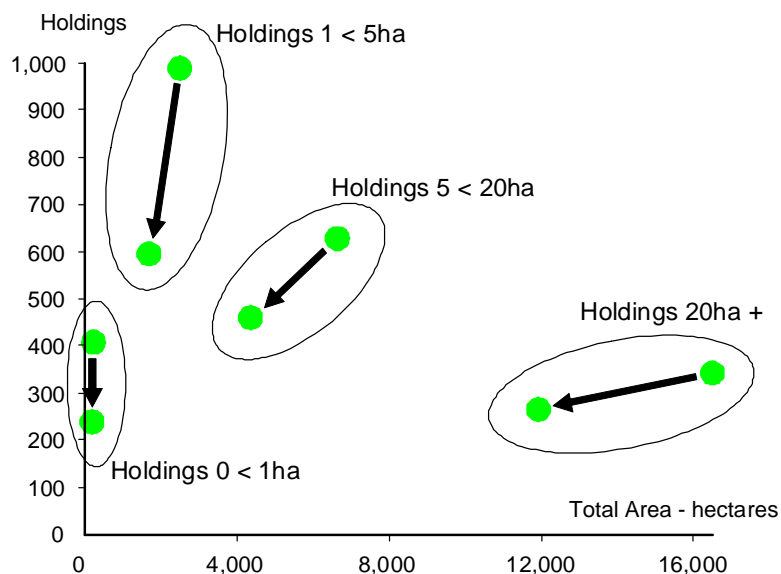
	2001			2007			% change
	Area ha	in % total	of	Area ha	in % total	of	
Total Orchards	22,697			18,016			20.6
Total dessert apples	6,630	29.2		4,873	27.1		26.5
<i>Of which:</i>							
Cox' Orange Pippin	3,489	15.4		2,128	11.8		39.0
Total culinary apples	4,798	21.1		3,797	21.1		20.9
<i>Of which:</i>							
Bramley's Seedling	4,558	20.1		3,617	20.1		20.6
Total pears	2,330	10.3		1,536	8.5		34.1
<i>Of which:</i>							
Conference	1,903	8.4		1,248	6.9		34.4
Cider apples & Perry pears		30.9			34.9		10.3
	7,010			6,290			
Total plums	1,072	4.7		888	4.9		17.2
Total cherries	473	2.1		447	2.5		5.5
Others	384	1.7		185	1.0		51.8

Source: Defra, Basic Horticultural Statistics, 2008

A declining area also implies a declining number of growers and the concentration of production on larger holdings. Figure 1 shows how the structure of the UK's orchard sector, i.e. all top fruit and not just apples and pears, has changed over the period 1997-2007. All four of the size categories displayed show falls in both the numbers of holdings and the total area accounted for by each size group. In contrast to most agricultural sectors the decline in area has been larger than the decline in holdings for the two largest categories. In the case of the largest category, 20ha +, the reduction has been 6.3 per

cent, reflecting a fall in the average size of holding from 47.9 to 44.8 hectares. Similarly, for the second largest category, 5 < 20ha, the average size of holding has contracted from 10.6 to 9.6 hectares - a reduction of 10.2 per cent. The two smaller categories are more typical of the agricultural industry and both reveal the number of holdings declining at a faster rate than the area. This has resulted in the average size of holding rising marginally from 0.46 to 0.5 hectares in the 0 < 1ha size category and from 2.49 to 2.81 hectares – 12.8 per cent – in the 1 > 5ha size category.

Figure 1. Structural change



Source: Defra, June Census

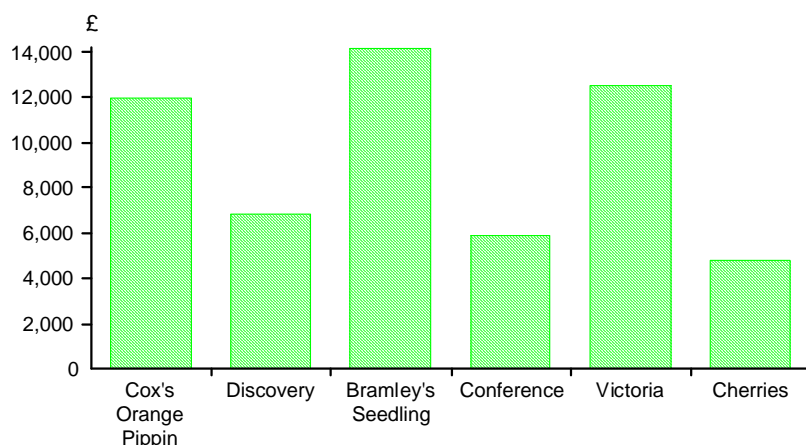
Under the previous area based system, holdings with orchard areas of less than 2 hectares were exempt. According to official data⁶ there were 453 holdings in 2007 recording commercial orchard areas of less than 2 hectares accounting for a total of 371 hectares. If we remove these holdings and hectares from the calculation, an area based levy system would involve 71 per cent of apple and pear growers but the largest two size categories would contributed some 92 per cent of the funds raised.

The second issue raised by an area based system arises from the fact that such a system bears no relationship to the value of what is produced on the area. This is a more substantive objection. Whether the value per hectare is defined as turnover, gross margin or profit it can vary markedly for a wide range of reasons. Figure 2 shows the average primary value per hectare – defined here as the commodity (or farm gate) price multiplied by the yield (tonnes per hectare) – for a selection of specific top fruits⁷. As can be seen the differences are marked.

Figure 2 shows the primary value for selected fruits but even within product categories, when comparing hectares of the same top fruit the primary value of the output is, like all crops, subject to the vicissitudes of the weather and disease. In addition the value will vary because of the class of fruit produced, the density of trees, their ages as well as the

level of expenditure on crop protection, tree management and harvesting. From a dynamic perspective the value of what is produced will vary from year to year depending on economic factors such as the rate of exchange and changes in the level of supply and demand.

Figure 2. Comparative primary values per hectare



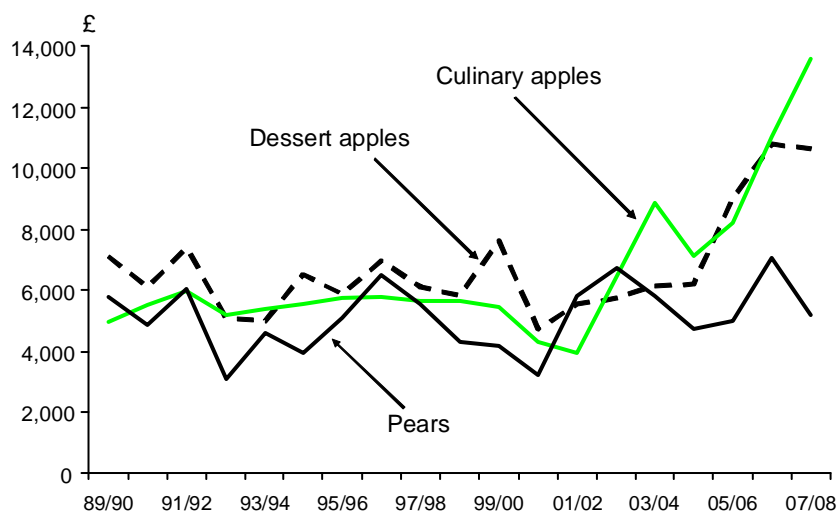
Source: Defra Horticultural Statistics 2008

An indication of the annual variations over time in value between dessert apples, culinary apples and pears is shown in Figure 3. The figure shows an implied average turnover per hectare per year which is obtained by dividing Defra's estimate of the value of output for each of the fruits by the total recorded orchard area for each fruit⁷. Unfortunately the data on total value, as published by Defra, relate to a calendar year and therefore are a weighted average of two seasons' yields and prices.

Nevertheless, a sense of the variability of the seasonal fluctuations in the value produced by a hectare of orchard can be seen, as well as underlying trends. All three fruits display an underlying upward trend in value, though in the case of pears the trend is not statistically significant - i.e. the underlying rate of growth is very low. What is clearly revealed by the figure is the widening gap that has been emerging between the value of a hectare of apples and a hectare of pears.

It follows that an area based levy, when translated on to a per unit of output basis, would vary widely between enterprises - with higher value per hectare enterprises, and very probably therefore the more profitable enterprises, paying a lower levy per pound of output. When this fact is set against the use to which the levy funds are put - in essence increasing the value of apple and pear production per hectare - this outcome is inequitable. Growers likely to be benefiting most from the new knowledge are paying less. This outcome does not sit easily with a statutory levy system whose primary justification is that it is equitable and transparent.

Figure 3. Value of top fruit per hectare



Source: Defra, *Basic Horticultural Statistics, various years*

So variable are the returns to individual top fruit growers that economists do not attempt to produce an average gross margin, preferring instead to produce returns based on a specific set of assumptions. While it remains impossible to accurately demonstrate the wide range of revenues per hectare generated each year within and between different top fruits, we know from the basic calculations for gross and net margins that variability in revenue translates successively into greater variability in gross and net margins. The evidence is overwhelming – an area based levy disadvantages enterprises with low returns per hectare and ensures that those with high returns pay less than their fair share.

Value based system

Although the foregoing focussed on apples and pears its conclusions are generic for agricultural sectors and point to the need for a statutory levy based on some measure of value. To quote the Radcliffe Report *'the fairest basis being closest to how the benefits derived from the levy are likely to fall would in my view be the value of the levy payer's gross value added or margin'* (p90). In fact the Radcliffe Report – presumably because the arguments appeared straightforward – devoted little space to discussing the relative merits of a levy based on some measure of value. It is not however, sufficient to claim a particular levy system is 'fairest', it must be demonstrated and there are grounds for questioning whether a value based system is automatically fairer than an area based levy.

We can explore this issue taking as an example the gross margin – revenue less variable costs – as the measure of value. Providing the scale of the farm remains unchanged the gross margin can only increase if revenue – price multiplied by yield – rises faster than variable costs which are defined to include casual labour – an important consideration in the case of horticultural products. The implicit assumption in the above quote from the

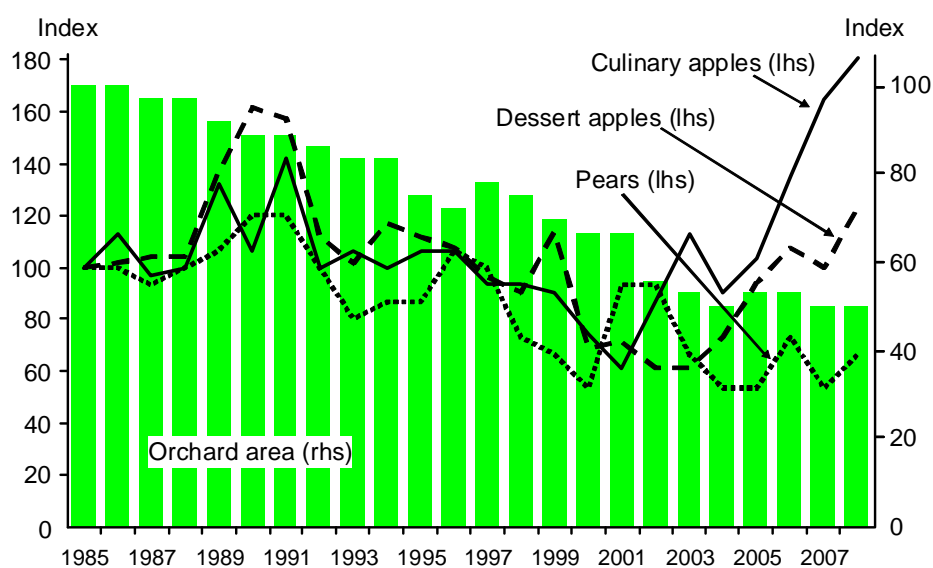
Radcliffe Report is that a higher gross margin reflects, or is indicative of, the benefit likely to be derived from the activities sponsored by the levy. But this is not necessarily true. As observed above, in any one year a gross margin can vary for reasons that are beyond the control of the grower - e.g. weather - and over time an improving or deteriorating margin can also be due to external factors e.g. changing demand.

However, putting aside the vicissitudes of the weather and longer term changes in demand, dynamic improvements in gross margins can result from grower initiatives as much as new knowledge generated by R&D. That is, at the level of an individual enterprise, managerial initiatives such as sufficient and timely investment or innovative marketing are likely, all other factors remaining equal, to improve the gross margin. Whether or not a higher levy is justified in such cases would depend on the extent to which new knowledge – generated by the employment of levy funds – contributed to the underlying improvement.

If an improving gross margin cannot automatically be attributed to the employment of the funds generated by statutory levies the same can be said for a value system based on turnover i.e. revenue. An increasing turnover might be accompanied by costs that are rising at a faster rate causing margins to decline. Nevertheless, a levy based on turnover also has some very clear benefits compared to one based on gross margins. As noted previously, revenue reflects the relative prices and yields for different crops and therefore in a levy system based on turnover the levy payments automatically adjust in years when prices and/or yields reduce turnover and *vice versa*. And as annual fluctuations in these variables can be large and are generally due to factors beyond the control of the grower (e.g. the weather or the rate of exchange) the movement of the levy in line with revenue prevents the payment becoming excessive in years of low returns. However, from the perspective of the levy authority, the counterpart to levy payments that move in line with the vicissitudes of growers' revenue is that the funds generated will also vary from year to year.

A key consideration for either an area or value based system is the total funds raised and from this perspective a value based system has a major advantage. Figure 4 uses data taken from Defra's annual assessment of the agricultural industry⁸ and shows – again on a calendar year basis – the value, i.e. total revenue, generated by dessert apples, culinary apples and pears. The data have been converted to index numbers (left hand scale) with a common base of 100 for the year 1985. This makes it much easier to compare the relative trends in the revenue for these three fruits over the period of years. Also shown in Figure 4, converted into index numbers (right hand scale) is the total orchard area, which includes all top fruit, which is also drawn from the annual review⁸. As revealed in Table 1, declines in the orchard area for dessert apples, culinary apples and pears largely account for the downward trend in the area of commercial orchards but even so in 2007 these fruits account for some 56 per cent of the area.

Figure 4. Revenue and orchard area trends



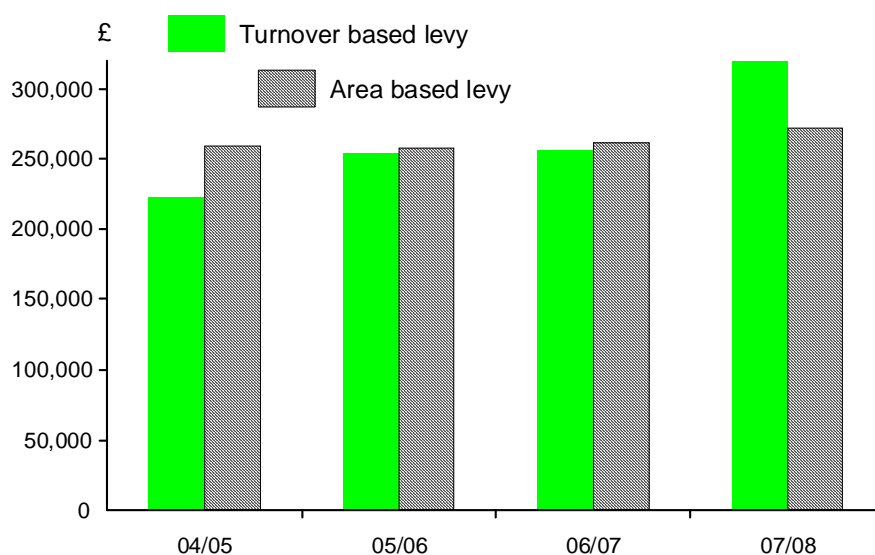
Source: Defra

Figure 4 suggests three distinct periods for the apple and pear revenues since 1985. The first period lasted until the early 1990s when, despite some marked annual fluctuations for all three fruits, the underlying trend was more-or-less flat. Over the 1990s revenue was on a declining trend for all three fruits, which to some extent was driven by the strength of the pound. Since the early 2000s the downward trend has been sharply reversed for both dessert and culinary apples but for the pear sector the downward trend has only levelled off.

In principle a levy system based on turnover would reflect these trends and, given that the combined apples area is some six times the area of pears, total levy income fixed as a proportion of the revenue would have fallen during the 1990s – a time of considerable income pressure for growers – but now be rising strongly. In contrast, a levy income based on the orchard area would – assuming a constant rate per hectare – have fallen during the 1990s and be continuing to fall despite the very much improved economic conditions faced by growers since 2000.

One of the specific objectives set for this report was to compare the findings of the Reading University Report⁹ with the situation for the years 2002-2008. The Reading University Report concluded on the basis of data averaged over the 10 years to 1999 that *'the net effect of a change to a turn-over based system [from the area based system] was an increase in the rate of levy payment of just 5 per cent'* (p29). The Report went on to point out that this increase was calculated before taking account of allowable deductions for packaging, haulage and the cost of replacement tree stock and that therefore *'it is fairly safe to assume that there will be no significant increase in the levy burden for apple and pear growers'* (p30). This conclusion appears to be born out if the four years shown in Figure 5 are averaged out.

Figure 5. Revenue generated by alternative systems



Source: AHDB data and authors estimates

Data for the area based levy system are the amounts actually raised for the three years from 2004/05 to 2006/07 and the estimate for 2007/08 is based on an increase of 4 per cent in the levy rate per hectare. In order to calculate the funds that would have been raised by a turnover based system it is necessary first to calculate the value of output for crop years – official data are now routinely published on a calendar year basis – and then to estimate the proportion of the value of output that does not attract a levy owing to holdings having a turnover, before or after deductions, that falls below the threshold. The reasons for these deductions are explained in the next section which explores the issues of the threshold and deductions and to attempt a detailed explanation here would unnecessarily complicate matters.

The reason for only going back to 2004/05 rather than 2002/03 is that Defra could only supply, from existing data sets, monthly price data for the relevant orchard fruits back to January 2004. For the results shown in Figure 5, Defra's estimate of the weighted average price for first and second quality has been used. The reason for the differences being larger between the two systems in 2004/05 and 2007/08 is due to relatively low prices – particularly for dessert apples and pears in 2004/05 and relative high prices for apples and pears in 2007/08.

In principle, aligning the levy to an enterprise's turnover is straight forward but, as indicated in the previous paragraphs, in practice matters are complicated by allowance for the deduction of a number of value adding post harvest (i.e. downstream) activities which in many instances are undertaken on horticultural holdings before the calculation of the levy. The Radcliffe Report, echoing the prevailing wisdom of encouraging integrated supply chains, pointed out that charging the levy on value that included 'downstream' activities such as storage and packing would encourage downstream stakeholders to take a more active interest in the uses to which the revenue generated was put. However, the Report accepted that the arguments were finely balanced and in the event came down in favour of limiting the levy to the value of primary production; that is the harvested,

commodity value of the raw product. This was a general conclusion for the horticultural sector as a whole but there are no strong arguments that apples and pears are fundamentally different than other horticultural crops in this respect.

Provided that the levy income is focussed on the needs of primary producers – which can include marketing and other downstream activities – the Radcliffe Report's conclusion is right and proper. But there is also an equity argument for applying the levy at the primary production stage. This reflects the fact, as is evident for apples and pears, that applying the levy downstream of the 'farm-gate' (say at the point of packing or movement out of storage) would result in much greater variability in the levy paid by individual growers. A levy incurred at the point of packing would not capture those producers who sell directly from the farm gate and it might encourage the growth of direct selling. Although the top fruit sector as defined here has, like all other agricultural sectors, much to gain from genuine longer term co-operative ventures with downstream customers, in the case of apples and pears the levy is primarily focussed on improving the efficiency of primary production and for this reason alone it should be primary producers as the main beneficiaries who bear the levy.

Other horticultural sectors

A further consideration when assessing the levy system for apple and pear growers is the treatment of other fruit and vegetable sectors. For these sectors, e.g. field vegetables, the levy has traditionally been based on turnover and all the points raised above apply to a greater or lesser extent to other fruit and field vegetable sectors. Establishing a levy system that achieves a fair balance between individual apple and pear growers is important but it is also important to achieve equity with other horticultural sectors – the more so where opportunities exist to pool levy income. From this viewpoint there is considerable strength in the argument that the basis for a statutory levy should be aligned across the various sectors. Given the extremely wide variation in the value of horticultural output per hectare for crops grown in the open – for example Spring Cabbage £3,850 per hectare and Strawberries £36,000 per hectare¹⁰ – there would be little sense in switching to an area based system generally for the horticultural sectors and in terms of production systems there is no fundamental difference between top fruit and other horticultural crops that would justify a different system.

Table 2 shows comparative gross margins for a small range of horticultural crops including dessert apples. As is always the case with horticultural crops, prices and particularly yields vary markedly between enterprises growing the same crop due to multiple reasons, some of which have been outlined above. Moreover, many of these crops are produced by specialist enterprises and this makes it difficult to collect reliable data on average production costs or indeed to talk meaningfully of an average cost. The data set out in Table 2 are based on seasonal grown crops being sold into wholesale markets but for the reasons explained the results should be treated as no more than an indication of relative revenues and costs.

Table 2. Selected comparative margins

	Dessert Apples	Carrots	Spring Cabbage	Raspberries	Strawberries
Revenue (per ha)					
2007/08	£9,540	£10,200	£4,200	£37,500	£44,000
2002/03	£5,945	£6,000	£3,420	£13,520	£16,450
Variable costs (per ha)					
2007/08	£5,987	£7,185	£2,790	£32,163	£38,960
2002/03	£3,631	£4,639	£2,143	£9,605	£12,658
<i>Of which as a percentage¹</i>					
Establishment/seed	9.5(14.0)%	7.5(9.6)%	14.5(17.3)%	3.3(4.2)%	8.2(7.9)%
Fertiliser/crop protection	18.9(13.0)%	13.0(10.6)%	33.0(19.2)%	3.1(5.4)%	3.3(6.1)%
Casual labour	43.6(30.0)%	13.2(18.3)%	18.1(25.2)%	58.3(45.2)%	46.2(33.4)%
Packaging/containers	12.0(14.0)%	52.1(48.5)%	19.4(22.4)%	8.2(17.6)%	15.9(23.4)%
Gross margin (per ha)					
2007/08	£3,553	£3,015	£1,410	£5,338	£5,040
2002/03	£2,314	£1,361	£1,277	£3,915	£3,792
Percentage change	53.5%	121.5%	10.4%	36.3%	32.9%

¹The first percentage refers to 2007/08 and the percentage in parentheses refers to 2002/03

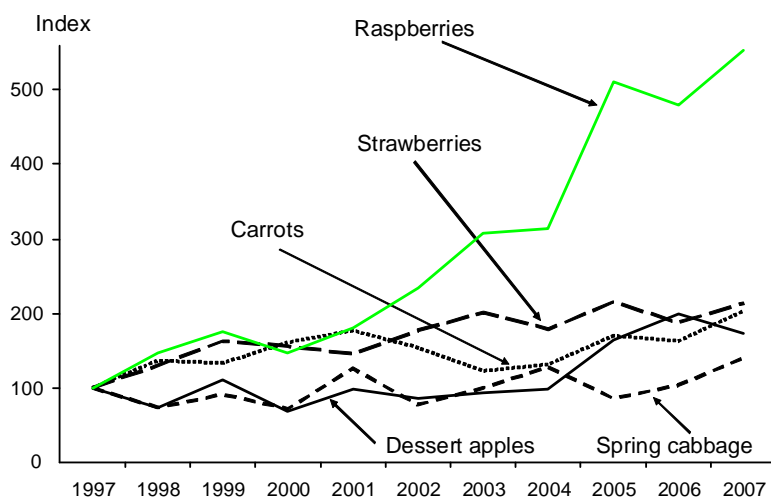
Source: *The Agricultural Budgeting and Costing Book various years*

In terms of the data set out in Table 2 it is not possible to argue that there is a fundamental difference between top fruit – represented by Cox’s Orange Pippin – and field grown fruit and vegetables. The table shows estimated gross margins for two years 2002/03 and 2007/08. Comparing any two years is fraught with difficulties – see for example the relative movement in revenue from one year to the next for these crops in Figure 6 – but subject to this caveat there are no grounds for saying that the revenue, variable costs and gross margins for dessert apples have behaved very differently from other horticultural crops. Apples, along with raspberries and strawberries, have seen casual labour costs rise significantly as a percentage of variable costs and all the crops shown, with the exception of carrots, have seen packaging costs fall as a percentage of variable costs. Most importantly, dessert apples have displayed a relatively good increase in gross margins.

If the movement of costs and gross margins do not justify special treatment for apples and pears recourse cannot be made to the behaviour of turnover to justify special treatment. As shown in Figure 6, using the crops summarised in Table 2, the annual fluctuations in revenue per hectare for the period 1997 to 2007 do not allow the argument that the value per hectare for top fruit is far more stable over time than for other fruit and vegetable crops. Again the data are only published on a calendar year basis and have been transformed into index numbers with a common base, but it is clear that there is no striking difference in terms of annual variability. The only distinguishing

feature between the selection of crops shown is the much improved performance of raspberries, emphasising again the difficult of setting horticultural levies on an area basis.

Figure 6: Comparative value per hectare: selected crops



Source: Defra, *Basic Horticultural Statistics, 2008*

Section summary

An area based levy has the advantage that it is directly linked to the process of primary production and it is relatively easy to apply. But an area based levy is inherently inequitable as it does not reflect the absolute value, or relative changes in the value, of what is being produced per hectare. A value based levy is in principle a more equitable basis as it better reflects the value a grower is earning and is also – albeit less than perfect – an indicator of the potential benefit arising from AHDB expenditure on the apples and pears sector. On this basis it should be levy on an enterprise's gross margin or profit as this takes account of the costs incurred in generating the sales revenue. But, a core principle of any statutory levy system is that it is applied transparently and fairly. In practice, collecting the data that would allow a fair and transparent comparison of profits or margins would be a **very costly**, if not impossible, annual exercise and hence a very inefficient method on which to base a levy. Moreover, gross margins, let alone profits, will vary markedly from year to year and hence calculating a levy on this base – even if practical – would result in the funds collected also varying widely from year to year.

Sales revenue offers a sensible compromise between equity and efficiency. Although it takes no allowance of the costs incurred and, as shown above, it can fluctuate from year to year and can even decline over a period of years, it is inherently more stable than gross margins or profits. It is also a straightforward concept easily understood and in principle easily calculated. If it is accepted that it would probably never be possible to devise a levy system that is equally fair to all growers attention needs to be directed towards achieving the best possible – and most widely supported – compromise between

the value to be measured and the costs – to growers and the AHDB – of assessing each grower's liability. Subject to the foregoing it is possible to set down some parameters in setting a levy system for apple and pear growers:

- A levy based on area will generate a predictable revenue from one year to the next but if area declines in response to rising yields and/or growing competition, the levy must be steadily raised;
- A levy based on area is inequitable as it makes no allowance for variations in the value of crops produced, which vary markedly annually and over time;
- A levy based on area does not benefit from an improving performance that is likely to be generated by the use of new knowledge generated by the employment of levy revenue;
- A levy based on value is in principle more equitable than one based on the area and aligns the apple and pear sector with other horticultural sectors;
- Sales revenue (i.e. turnover) is a practical measure of value, but measured on an annual basis is subject to fluctuations and can in principle decline over time if the sector suffers intense competition;
- The value used for the calculation of turnover should be the value of primary production but arriving at an estimate of this value creates scope for evasion and higher collection costs.

II. Who pays the levy and how is it calculated?

The previous section concluded by that a levy system based on turnover is in principle more equitable than a system based on area. But this conclusion is not sufficient. Whatever the system, in practice it must also be seen to be fair and even-handed by those paying the levy, regardless of their pattern of sales. This brings the focus to two aspects of the new turnover based system:

- the proportion paying a levy; and
- the way in which an enterprise's turnover is assessed.

The issue of the threshold

One of the most striking features of the new, turnover based system for apple and pear producers – at least to an independent observer – is the high proportion of commercial growers who are given an exemption. Currently of the 387 growers who were sent a Horticultural Return only 182 – 47 per cent – pay a levy, though of the 205 growers not paying a levy 20 did not return the form so it is possible they have ceased production. Whether or not this is the case, it remains true that more than half of commercial apple and pear growers do not pay a levy, which appears an extraordinarily high proportion. Such a high exemption rate appears in direct conflict with the principle of fairness and even handedness.

The high level of exemptions arises from the minimum threshold for payment; namely, a net turnover (sales revenue) after permissible deductions, of £60,000. As on average permissible deductions amount to 20 per cent¹¹ of gross turnover, the threshold is in fact some £75,000. The threshold has apparently been set to be broadly in line with the threshold for VAT registration¹² but the logic is questionable. The VAT threshold is set for gross turnover and in any event a threshold set for the convenience of tax collection is not necessarily the correct threshold for the setting of a statutory levy base. In 1986 the levy threshold for horticultural holdings in general was fixed by the government at £25,000 and if this figure is raised by inflation – using the government's preferred consumers' price index – it would have produced a threshold of some £46,000 in 2008. If it had been raised by the older, retail prices index – the RPI – the threshold would now stand at £55,000. Interestingly, if the original threshold of £25,000 had been raised by the price index for apples and pears it would have stood at a little more than £34,000 in 2008.

Administrative convenience might predispose the government and their civil servants to raise the threshold in line with the threshold for VAT registration but there is no logic as regards the revenue for apples and pears, or any other horticultural product for that matter. For many years agricultural prices in general have risen at a slower rate than general inflation – a primary influence on the VAT threshold – and over a period of time divergence is to be expected as agriculture has generally enjoyed a higher rate of productivity than the economy in general. But raising the levy threshold by an annual rate that is in advance of the growth of the prices for apples and pears will ensure that the levy base – in terms of the proportion of growers – steadily declines. There is no

business justification for such a trend nor do I believe there is a social argument. However, the advance of such an argument; namely, that the burden should be lifted from small scale producers, does not justify increasing the burden on larger scale farms. If the argument is that holdings with a net turnover of £60,000 (i.e. after permissible deductions) or less are part-time and/or small scale and on this 'social' basis should be exempt, then their loss of levy income should properly be replaced by central government as part of its social policy.

Under the area based levy system farms with less than two hectares were exempt – judged to be part-time or too small to be commercial in the accepted sense and the cost of collecting the levy exceeded the sums raised. Turnover per hectare for apples and pears is, as previously noted, highly variable but based on the official Defra publication, *Basic Horticultural Statistics - 2008*¹³ the weighted primary value per hectare for apples and pears ie, in the absence of any value adding activities eg, storage, is estimated at £11,610 per hectare for 2007. This is based on provisional data and is a calendar year calculation but nevertheless it serves as a reasonably objective guide. On this basis, to be consistent with the 'old' area based threshold of two hectares the new turnover based threshold should currently be around £23,000. Put another way, the 'old' area based threshold has been increased more than two and a half times in order to move the apple and pear sector in line with the threshold for other horticultural sectors.

As observed above a point to be considered when evaluating the new apple and pear levy system is how it compares with other horticultural sectors. Table 3 shows estimates of the weighted, primary value per hectare for the some key fruit and vegetable sectors in 2007 based on official data^{13,14}. The table also shows, on the basis of these estimates, how many hectares are required to reach a net threshold of £60,000 on the assumption that permissible deductions average 20 per cent for all sectors. As can be seen the number of hectares for apples and pears is not markedly different from roots and onions and brassicas, some 2.5 times the area for strawberries and approximately one ninth the area required by legumes.

Table 3. Implied threshold and size

	Apples & Pears	Soft Fruit	Roots & Onions	Brassicas	Legumes
Average revenue	11,610	28,694	10,504	8,536	1,267
Hectares to achieve a net threshold of £60,000	6.5	2.6	7.1	8.8	59.2

Source: Authors estimates based on Defra, Basic Horticultural Statistics, 2008

Another way to consider the relative size of the threshold for apple and pear enterprises is to consider the frequency distributions set out in Table 4. This allows comparison of the relative structures for horticultural holdings in England (i.e. not including commercial orchards) and commercial tree fruit holdings. The data set out in Table 4 show that only 29 per cent of commercial tree fruit holdings – note this is *all* top fruit, not just apples

and pears – have an area of less than two hectares compared to 63 per cent for other horticultural holdings. This indicates that horticultural holdings generally have a longer tail of smaller holdings than the top fruit sector. More than half of commercial tree fruit holdings – 53.9 per cent – have a size of between 2 and 20 hectares compared to a quarter for horticultural holdings generally, though the average size at 6.9 hectares is very similar. Some 17 per cent of holdings account for almost two-thirds of the total area of commercial tree fruit holdings but when compared to larger scale horticultural holdings tree fruit holdings are less concentrated and the average size at almost 45 hectares is significantly less than the 73 hectares for horticultural holdings generally. It is not possible on the basis of the data set out in Tables 3 and 4 to argue that with a net threshold of £60,000 a larger proportion of commercial tree fruit holdings will escape paying a levy than horticultural sectors in general.

Table 4. Comparative structures

	0 < 2 hectares	% of total	2 < 20 hectares	% of total	20 < hectares	% of total
Horticultural holdings less commercial orchards						
Area	4,234	3.2	24,273	18.5	103,057	78.3
Holdings	8,256	63.4	3,350	25.7	1,412	10.8
Average	0.5		7.2		73.0	
Commercial tree fruit holdings						
Area	371	2.1	5814	32.1	11941	65.9
Holdings	453	29.0	840	53.9	266	17.1
Average	0.8		6.9		44.9	

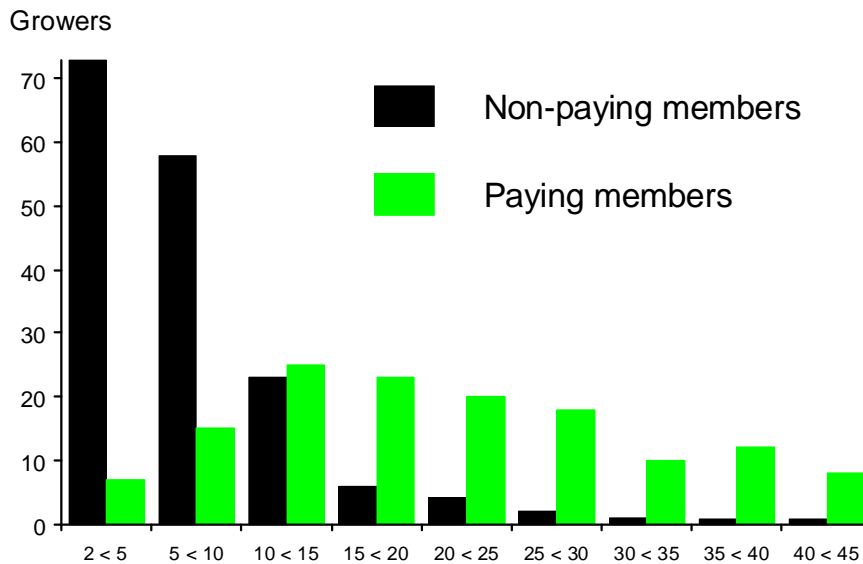
Source: Defra, Census Data, 2008

Alignment with other horticultural sectors is an important consideration but not the most important. If a net threshold of £60,000 is itself inequitable then alignment between the apple and pear sector and other horticultural sectors is neither desirable nor appropriate. This brings us back to the size of the threshold itself. It may well be the case that a specialist commercial tree fruit holding with a net turnover of less than £60,000 per year will be farmed on a part-time basis but this in itself is not a justification for exemption from paying a levy. The fact that a commercial business is part-time does not preclude it from benefiting from the work of the HDC. The fact that a commercial business is part-time does not imply poverty – the orchard might reflect a lifestyle choice for someone earning an income in another agricultural sector or another part of the economy. The fact that a commercial business is part-time does not mean it would be uneconomic to collect a levy.

Following from the last point, the only commercial justification for not collecting a levy from a commercial grower whose business is likely to benefit from the work of the HDC is when the cost of collection exceeds the levy collected. This implies a small *de minimis* net threshold of say £18,000 which would generate a levy of £90 at the current rate of 0.5 per cent. This is a practical threshold i.e. one that should yield a

small but tangible addition to HDC funds, after allowing for the average cost of collection. Ignoring the 20 growers who had not returned an AHDB levy form at the time when this report was being prepared, AHDB data¹⁵ show that there are 169 registered growers whose net turnover apparently falls below £60,000 and another 16 who have allocated zero per cent of their levy to apples and pears i.e. 185 registered apple and pear growers do not contribute to the apple and pear levy fund. According to AHDB data the areas of orchards on the 169 holdings with sales that fall below £60,000 range from a minimum of 2 hectares to maximum of 42.5 hectares¹⁶. Figure 7 shows the number of apple and pear growers, on holdings up to a maximum of 45 hectares, taken from AHDB records. They are divided into two groups, those who are paying a levy and those who are not. As would be expected with a net threshold of £60,000 the majority of those not paying a levy are relatively small, for example some 43 per cent of non-payers – 73 growers – have commercial orchards of between 2 and 5 hectares. But Figure 7 makes clear that a number of smaller holdings do pay a levy while a number – admittedly a smaller number – of larger scale growers do not.

Figure 7: Paying and non-paying smaller scale growers



Source: AHDB

The total area of orchards on the 169 non-paying holdings illustrated in Figure 7 amounts to 1,305 hectares registered in 2007 and there are a further 213 hectares on the 16 who allocated zero levy. This yields a grand total of 1,519 hectares of commercial apple and pear orchards – approximately 19 per cent – that are not contributing to the apple and pear levy fund. We must be mindful that there may have been some changes in the areas of orchards on these holdings since 2007 but until more recent data are available these data must serve as the guide. I do not have access to the gross turnover for these holdings but working back from the data supplied by AHDB on levy payments and orchard areas, the average net-sales revenue per hectare for apple and pear growers paying a levy is £8,464 for the year ending March 2008. This average, it should be noted, is after permissible deductions which are estimated at an

average of 20 per cent implying an average gross turnover of £10,580, approximately 9 per cent lower than the weighted average for primary value per hectare using Defra's data for 2007. Permissible deductions are designed to remove from gross turnover value adding activities, e.g. haulage, but on the basis of these figures there is a significant discrepancy between the AHDB's recorded average net turnover of £8,464 – in principle the value of primary production – and the estimate of primary value obtained using official data.

Applying the average net-sales revenue of £8,464 to the total hectares not paying a levy generates additional revenue for the HDC of £58,299 at a levy rate of 0.5 per cent. In 2008 the total levy revenue allocated by growers to apples and pears amounted to £318,668. On the basis of these broad calculations, the result of removing the £60,000 threshold with the effect that all commercial apple and pear growers on the AHDB list of members paid a levy based a net-sales revenue of £8,464 could, in principle, be an increase HDC apple and pear funds of some 18 per cent. The revenue that might be raised by converting all or some of the non-paying growers into levy payers is looked at in more detail in the next section.

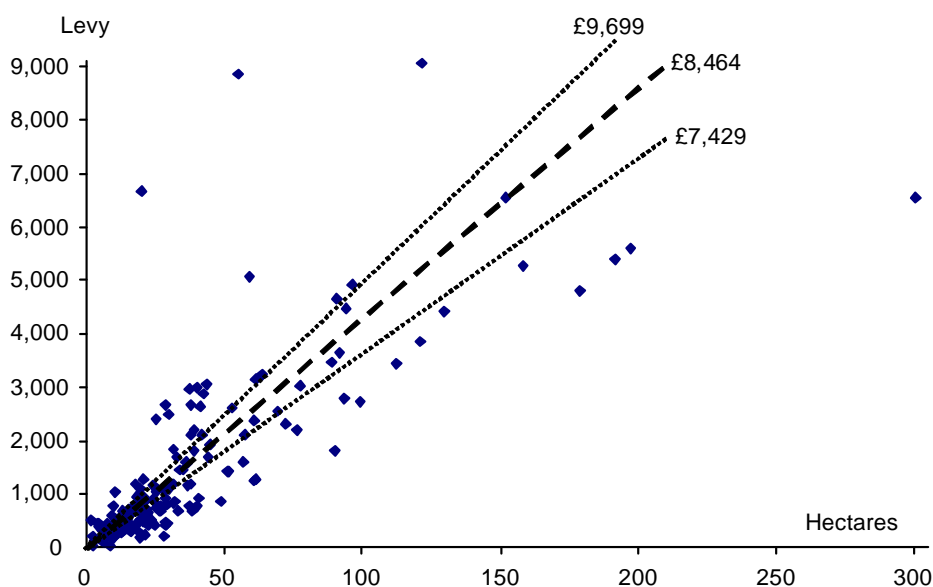
Deductions

In principle the levy paid by growers is calculated against the value of their primary production; namely, the sales value of the fruit as it is harvested before any value adding activities are taken into account. It follows therefore that in principle it is necessary to calculate an enterprise's turnover net of any value derived from 'downstream' activities such as direct retail sales, grading, storage, packing and haulage. The current system attempts to get at this primary value by allowing a range of deductions. The largest single deduction is of 50 per cent from the enterprise's turnover on direct retail sales, but in addition growers can make a limited number of deductions for packing materials, haulage, bought in produce and processing.

The effect of these deductions will vary across enterprises but, as noted above, they amount on average to a reduction of 20 per cent on gross turnover which translates not only to a significant loss of levy revenue for the HDC but also, to the extent that permissible deductions vary in line with production volumes rather than sales revenue, to greater instability in the levy income. On the basis of an NFU paper¹⁷ submitted for the review of the apple and pear levy, deductions might typically amount to 30 per cent of a holding's gross sales revenue. Although the principle underlying permissible deductible costs is logical, given the intention to levy the value of primary production, in practice arriving at the true costs of downstream value adding activities is not straightforward. Some growers send their fruit to external packhouses where the various costs are not itemised. In other cases, growers with their own cold stores and packhouses would not be able to easily identify permissible deductible costs. In addition, deductible costs create scope for 'game playing' – or to be more blunt, fraud – and the situation is not helped by the sense of injustice many larger growers feel when they see half of the population of commercial apple and pear growers exempt from paying a levy.

Some idea of the scope for 'game playing' provided by allowable deductions is illustrated in Figures 8 and 9. Figure 8 shows a scatter diagram setting the amount of levy paid by all but two of the 176 levy payers for whom there exists data on the size of their orchards. The two who are excluded pay a levy significantly higher than the vertical axis' £9,000 maximum and to include them would have necessitated greatly compressing the diagram's vertical axis. Superimposed on the diagram is a bold, dotted, straight line showing a calculation of the levy that would be paid if sales revenue per hectare (net of deductions) was constant at £8,464 for all growers. For example a grower with 100 hectares of orchards would, on this basis, be expected to generate a primary value of £846,400 and at a rate of 0.5 per cent pay a levy of £4,232.

Figure 8. Distribution of levy payments

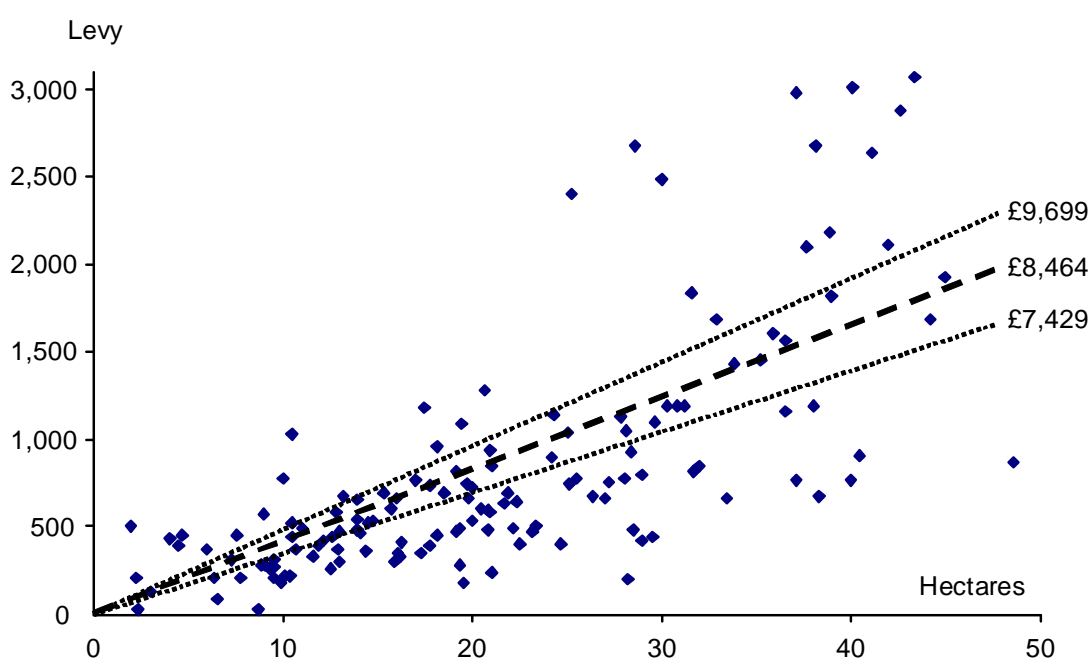


Source: AHDB and authors estimates

The average (net) sales revenue of £8,464 per hectare is, as explained above, an estimate based on the sample of growers who pay a levy. Using basic statistical techniques it is possible to provide a confidence range or interval for this estimated mean. A confidence level of 95 per cent has been estimated which gives a range from £7,427 to £9,699 per hectare for net sales revenue. This should be interpreted as indicating that 95 times out of a 100 we would expect a mean estimated from a random sample of growers to fall within the range. The confidence interval is represented in Figure 8 by the vertical distance between the two upper and lower, thinner, dotted lines. As can be seen, the data reveal some growers are paying a levy implying a sales revenue per hectare net of deductions that is considerably above the upper limit of £9,699. In fact of the 176 growers some 41 - 23 per cent had an estimated average net-value per hectare of more than £9,699. If the net-value per hectare is evenly spread about the mean we would expect a similar proportion of growers to have an estimated average net-value per hectare of less than £7,429 but there are in fact 96 growers - 55 per cent - whose net-value per hectare falls below this figure. This implies downward bias in the levies paid by growers.

This point can be more clearly seen if attention is focussed on an enlarged part of Figure 8. Figure 9 is restricted to growers with 50 hectares or less and the blow up shows that a significant majority of the growers are paying a levy that is based on a net-value per hectare that is markedly lower than the lower limit of £7,429 per hectare. Figure 9 raises a concern. In principle the net sales revenue per hectare should reflect the product of yield and market price. Catastrophe aside (e.g. disease) both yields and prices can vary considerably from grower to grower, particularly when varieties and classes are taken into account. So a wide range around the mean of net-values per hectare might be expected but we would normally expect the random pattern in yields and prices to generate a more balanced picture than shown in Figure 9. The results set out in Figures 8 and 9 imply, but do not prove, that a number of apple and pear growers are either underestimating the value of their gross sales revenue and/or over-estimating permissible deductions.

Figure 9. Distribution of levy payments



Source: AHDB and authors estimates

A number of factors might contribute to an explanation of the wide variance between the value of net sales per hectare implicit in the data supplied by growers to the AHDB and estimates based on official data. Firstly, data collected by Defra for 2007 is still described as provisional so adjustments are possible. Secondly, growers might mistakenly increase the value of their deductions based on a misunderstanding of what constitutes a permissible deductible cost – the NFU submission refers to *'widespread misunderstanding of what is required'*¹⁷. For example they might include some marketing expenditure with packaging materials. Alternatively, they might believe they are justified in exaggerating allowable deductions to compensate (as they see it) for the non-allowance of other costs e.g. storage which they believe should be included.

A third possible cause of the variation is the timing of the returns. The AHDB Order 2008¹⁸ requires that growers must complete their returns by 30th June based on their accounts for the financial year ending in March. On the face of it three months seems a reasonable amount of time but for some growers it will involve estimating a valuation for crops in store. Similarly allowable costs such as packaging and haulage might be estimated and based on the most recent costs rather than an average over the year. If accounts for the year are not complete there is scope for the inflation of costs.

Fourthly, and more fundamentally, enormous scope for bias is created when apples and pears constitute only a proportion of the holding's agricultural output. Of the 182 growers paying a levy in 2008 – including the 6 new levy payers – the apple and pear levy paid by 91 of these growers (50 per cent) formed only a proportion of their total AHDB levy. The average apple and pear levy for this group equalled 55 per cent though the proportions ranged from 2.2 per cent to 99 per cent. Growers have traditionally been allowed to choose how much of their levy they wish to be allocated to specific crops but this does not sit easily with the need for greater certainty from one year to the next in the level of funds raised for specific projects. Sixteen of the 91 growers with mixed holdings choose to allocate 0 per cent of their levy to apples and pears while of the remaining 75, some 38 seemed to have allocated a share of their total levy that underrepresented the contribution of apples and pears of the holding's total revenue. In fairness it appears that many of the remaining growers allocated a larger than proportional share of their total levy to apples and pears.

Finally, the 50 per cent deduction for direct retail sales merits closer consideration. The guidance notes issued by the AHDB to growers¹⁸ imply (p 4) that retail sales are expected to be small scale by describing the value of sales entered into the Retail Box as '*sales of small quantities or individual items of your own produce to consumers from premises approved for retail use*'. The phrase 'small quantities' can be interpreted in two ways. One interpretation would be that as direct sales represent only a small percentage of an enterprise's total output and whatever the deduction from the consumer price it makes little difference to the total levy paid by the enterprise. An alternative interpretation is that if the quantities involved are small why do they merit special treatment? Whether or not retail sales contribute only a small proportion of sales revenue the likelihood is that favourable treatment for direct retail sales will encourage growers – particularly those who already have the advantage of a holding that is favourably located for direct sales – to sell directly to consumers and to the extent that this occurs so it places additional pressures on those growers who market through traditional channels.

Whether or not a deduction from total revenue for retail sales is considered defensible an important issue here is whether the 50 per cent retail deduction is in effect inequitable when compared to the limited allowable deductions for 'mainstream' apple and pear growers. The retail price of apples and pears is (as is always the case for any agricultural product) higher than its value at the farm-gate. But the overall tone of the market is set, not only by the total supply of apples and pears, but also by the average quality and the sector's investment in marketing. The result is that growers who receive a reduction in their levy liability as a result of direct sales to consumers are also benefiting from those growers who have invested in marketing. The AHDB Horticultural Returns Guide does not

provide for marketing expenses to be deducted from sales revenue even though they can be *exceptionally high*¹⁷. When compared to the permissible deduction for retail sales the lack of deductions for marketing and storage costs is another potential source of inequality. Yet another source of inequality concerns the grower who does not sell to final consumers but achieves an above average primary value of sales revenue per hectare as a result of investing money and effort in quality production systems.

A final criticism of the deductions is that they are bureaucratic and time consuming. They necessarily involve the grower in additional calculations and paperwork. The NFU submission to the HDC states that *'for many, particularly medium to small sized levy payers, the paper work requirements in terms of retail and management time, apart from cost, is far more onerous than with the previous method of calculation based on hectares grown'*¹⁷. In short, calculating allowable deductions represents an opportunity cost. And from the perspective of the AHDB allowable deductions serve to increase the costs of administering the system.

Section summary

It is beyond dispute that the most contentious issue arising from the switch from an area based to a turnover based levy system is the substantial increase in the number of growers who as a result are now exempt from levy liability. It is not the turnover system itself but the introduction of a £60,000 threshold that accompanied the new system that is the major source of the unhappiness. More than 50 per cent of apple and pear growers are exempt. The majority of the 185 growers who do not pay a levy are small scale but not all; 37 non-paying growers had commercial orchard areas in excess of 10 hectares, implying a net sales revenue after deductions of less than £6,000 per hectare. As a group, the exempt levy payers account for 1,519 hectares of commercial orchards, approximately 16 per cent of the total. Much depends on relative yields but it is likely that some 10 per cent of commercial apple and pear production does not pay a levy.

The argument that in accepting a threshold of £60,000 apple and pear growers are merely moving into alignment with other fruit and vegetable sectors is powerful but not decisive. Firstly, the act of alignment with other sectors does not make the threshold equitable. Equity is preferable to alignment; that is, first and foremost the system must be viewed by those paying the levy as fair and even handed. Secondly, at the level of individual growers the new system involved a change in the *relative* financial position of neighbours and being human, growers are much more sensitive to relative rather than absolute change. Finally, there is the issue of economic efficiency. On this criterion the threshold should be determined by the costs of collection. If all growers can, in practice, expect to have access to the benefits the levy revenue delivers to the sector all should contribute in proportion to the likely scale of their potential benefits.

Deductions, while in principle logical and defensible are in practice a further source of inequality. Firstly, there is a wide variation in the implied sales revenue per hectare upon which a grower's levy is calculated. A wide variation is to be expected given the nature of the product but it appears on the basis of what evidence is available that a large proportion of members are declaring a net sales revenue per hectare (i.e. after deductions) that appears to be significantly lower than might reasonably be expected. Growers are allowed to make deductions for certain items of expenditure based on their

own – albeit certified – estimates, but self calculated deductions create scope for 'game playing'. To the extent that such behaviour occurs so the levy system has created a source of inequality between members.

Secondly, allowing a deduction, and in the event a large deduction, for retail sales is another source of inequality. The justification for a deduction from retail sales is that the higher value has been achieved from the investment in facilities to sell directly to the public and these are not strictly associated with the production of apples. But in principle investing in retail facilities to raise the value of sales is equivalent to the grower who has increased the value of sales by investing in technology, high yielding/high quality production systems and marketing in order to increase the value of sales revenue.

Thirdly, allowing deductions is necessarily a cost for both growers and the AHDB. Growers have to engage in additional calculations and paperwork and the AHDB has to bear the additional costs of administering the system.

The last section concluded with the recognition that it will probably never be possible to devise a levy system that is equally fair to all growers but based on the analysis in this section improvements could be made to the present system by:

- adjusting the threshold so that a large majority, if not all, commercial tree holdings are liable to pay a levy; and
- greatly simplifying the system of deductions so as to increase transparency and reduce the scope for 'game playing'; and
- in so doing improve the system's efficiency by reducing the time and effort devoted by growers to calculating their levy and the costs to the AHDB of administration.

III Proposed improvements

The purpose of imposing a statutory levy is, in part, to overcome the classic problem of *market failure* posed by an atomistic industry where individual businesses are too small to fund the R&D activities necessary to develop and better secure the competitive position of individual businesses. A statutory levy also overcomes the *free-rider* problem which arises from the difficulty of restricting the benefits of levy funded R&D to only those producers who have provided the funding. These observations give rise to two important principles that must underpin all statutory levy systems; namely, the system must:

- as far as reasonably possible operate in a manner that is judged equitable between levy payers; and
- all who are potentially likely to benefit from the uses to which the levy funds are put should, within reason, contribute.

It follows that these two principles must apply to the new levy system for apple and pear growers; indeed the new system must not only be theoretically at least as equitable as the system it replaces but also in its operation it must actually be seen to be fair and even handed. Two additional principles concerning the efficiency of the system can be added to those above. Firstly, the cost of calculating and collecting the levy should be minimised and secondly, the levy authority should be reasonable certain i.e. within tolerable limits, of the amount of funds that will be raised each year.

Two inequitable features

Section I argued that while an area based levy has some advantages as a system it is inherently inequitable as it does not reflect the absolute value, or relative changes in the value, of what is being produced per hectare. Value per hectare is an indicator – albeit less than perfect – of the potential benefit arising from HDC levy expenditure to improve the economic performance of UK apple and pear producers. Ideally, value per hectare should be calculated at the level of profit i.e. sales revenue less variable and fixed costs, or at the gross margin level i.e. sales revenue less variable costs. The implicit assumption is that profit or gross margin will, over the longer term, reflect both the revenue and cost benefits likely to be derived from the activities funded by the levy.

In practice basing a levy on profit or gross margin is not very practical. The practical difficulties of collecting and checking what would be a great deal of data necessary to prevent 'game playing' and to facilitate a fair and transparent comparison of growers' profits or margins make it a *very costly* and therefore an inefficient method of basing a levy. Moreover, profits and gross margins will vary markedly from year to year and hence calculating a levy on this base would result in the funds collected also varying widely from year to year. Sales revenue offers a sensible compromise between equity and efficiency. Although it takes no allowance of the costs incurred it is inherently more stable than gross margins or profits and a levy based on sales revenue has three additional advantages: it reflects the relative prices and yields for different crops; levy payments automatically adjust in years when prices and/or yields reduce turnover and

vice versa; and it is a straightforward concept easily understood and in principle easily calculated.

The conclusion drawn from the analysis set out in Section I is that in principle, a levy system based on sales revenue represents an improvement on an area based system but Section II argued that the advantages of the new system had been compromised by two ancillary features; namely, the introduction of a £60,000 liability threshold; and the scope allowed for making deductions from sales revenue before calculating the levy. One of the most striking features of the new value based system is the high proportion of commercial growers who are given an exemption as a result of the £60,000 threshold. Currently of the 387 growers who were sent a Horticultural Return only 182 – 47 per cent – pay a levy. Such a high exception rate appears in direct conflict with the principle of fairness and even handedness.

Deductions are logical and defensible given that the levy should be set on the basis of the primary value produced and many growers undertake value adding activities. But, in practice they have the scope to be a further source of inequality. Section II offered evidence – albeit not conclusive – that a large proportion of members are declaring sales revenue per hectare, net of deductions, that appear to be much lower than might reasonably be expected. Growers are allowed to make deductions for certain items of expenditure based on their own – albeit sometimes certified – estimates, but self calculated deductions create the opportunity for ‘game playing’. And, to the extent that such behaviour occurs so the system of deductions cannot be said to be equitable. Another inequality is raised by the limits that are placed on what costs can be deducted. For example, a deduction of 50 per cent can be made from retail sales revenue before calculating the levy but there is no difference in principle between investing in retail facilities to raise the value of sales and investing in technologies, high yielding/high quality production systems and marketing in order to increase the value of sales revenue. Yet, no deductions are allowed for the second category.

It is paradoxical that in introducing a new statutory levy system widely championed as being more equitable, the methods employed have compromised this benefit and in the opinion of many, particularly larger scale, growers the new system is in effect less equitable than the area system it replaced. It follows that in seeking to improve the levy system for apple and pear growers the focus needs to be placed on the level of the threshold and the system of deductions. A helpful and insightful starting point for proposing changes to these two ancillary features of the current system is the game theoretic framework set out in Figure 10. The advantage of using this approach is that it throws into sharp relief the fact that changes to the current levy system will have implications for three groups: growers who are currently paying a levy; growers who currently do not pay a levy; and the AHDB who needs to administer the system and who has a vested interest in ensuring that the correct levy income within in the terms of the Order is achieved.

The framework shows – albeit in a highly simplified form – the outcome or in the jargon the ‘payoffs’ to the HDC and apple and pear growers from high and low threshold levels together with scope and no scope for deductions. The current situation is represented by the top left hand cell where the payoff to the HDC of the

£60,000 threshold and scope by levy payer to make deductions is a reduced levy income and higher costs of compliance. The payoff to growers – implicitly those paying a levy – is a sense of injustice and every incentive to maximise deductions.

Figure 10. A Game Theoretic perspective

		Members	
		Scope for deductions	No scope for deductions
HDC	High threshold	Unhappy levy payers maximise deductions by 'game playing' to reduce inequity Lower income, funds directed to compliance	Greatly increased dissatisfaction for levy payers Improved income, reduced costs of compliance
	Low threshold	Unhappiness for new levy payers and general temptation to 'game play' Improved income, more funds directed to compliance	Unhappiness for all levy payers at increased cost at farm level Highest possible income, low compliance costs

An unlikely alternative scenario is that the high threshold remains in place but the scope to make deductions from sales revenue before calculating the levy is abolished – represented by the top right hand cell. In principle the HDC would improve its payoff with a larger levy income and reduced compliance costs. The payoff to growers however, would be a much increased sense of injustice and dissatisfaction which might manifest itself in growers redirecting a larger share of their levy payments to other horticultural sectors.

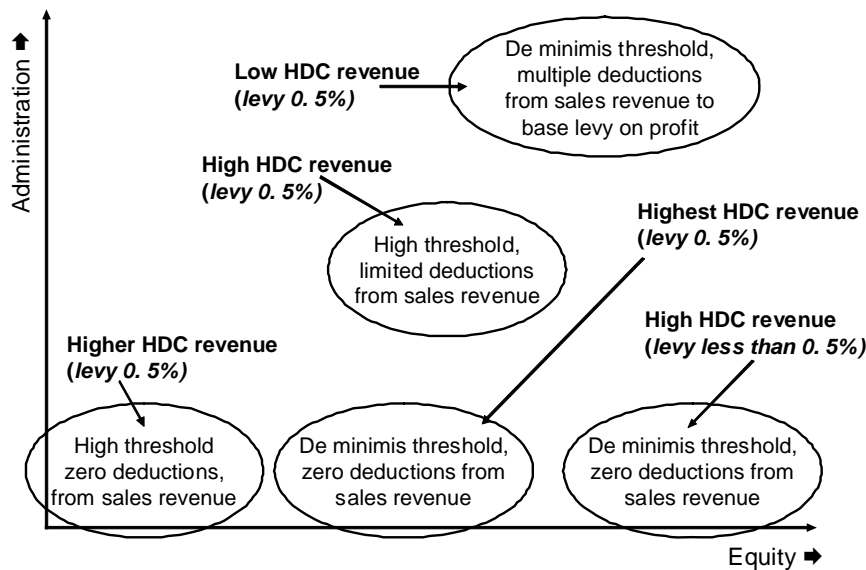
A variation to the previous scenario is shown in the bottom right hand cell where the threshold is reduced to a low level and the scope for deductions removed. The payoff to the HDC is an unambiguous gain. Levy income is increased and the costs of compliance are reduced. The payoff to growers is unsatisfactory but more complex. There would be a gain for those growers previously suffering a high sense of injustice under the high threshold as the spread of the levy base is increased. However, in the absence of any other changes all growers – both those previously paying a levy and those now brought into levy paying – would pay a higher levy as a result of not being able to apply any deductions to gross turnover. As displayed, the outcome for growers of the scenario summarised in the bottom right hand cell would not be very satisfactory. The injustice of the high threshold has been replaced by the injustice involved in the removal of allowable deductions.

The final scenario shown in Figure 10 is to maintain the present system of deductions but reduce the threshold to a very low level thereby increasing the proportion of growers liable to pay a levy – as shown in the bottom left cell. The payoff here for the HDC would be an increased levy income tempered by the need to maintain or increase expenditure on compliance. For those growers who had previously borne the cost of the levy the situation has improved in terms of a sense of fairness, but those growers who until the change had been exempt from paying a levy are unlikely to be happy.

It is possible that the removal of the high threshold would result in a more 'relaxed' approach to deductions but in reality this is unlikely. The scenario shown in the bottom left hand cell could be taken further in the direction of equity by actually increasing the allowable deductions.

This solution is shown in Figure 11 which illustrates the trade off between increasing equity for growers and the administrative burden for the HDC. The current system sits in the middle, indicating that it is relatively costly to administer and not viewed as particularly equitable. If growers were allowed to deduct all costs associated with generating a sales revenue the result – when combined with a low threshold – would be a system that was widely viewed by growers as both fair and even handed. But as emphasized previously there are a number of serious difficulties with this solution. The practicalities of ensuring a fair and transparent treatment of costs would make such a system *very complex* and *very costly* to administer and the levy income generated from such a system would be not only *highly unstable* but also, at a rate of 0.5 per cent *much reduced*. In order to maintain the income generated by the system it would be necessary to increase the levy rate markedly ie, ten fold if the average profit rate was 10 per cent.

Figure 11: Levy system tradeoffs



The NFU, in its submission to the HDC¹⁷ on the new levy system, implicitly recognised these difficulties and suggested a half-way house whereby the existing range of allowable deductions are increased but to lessen the administrative burden the deductions would be based on 'standard costs'. That is, growers would be permitted to make a pre-determined fixed percentage deduction from sales revenue for each allowable cost. The submission implies that range of permissible deductions be increased with the effect that deductions are significantly increased. This proposal has merit in that it would reduce 'game playing' but the substantive criticism remains. The levy base, sales revenue less deductions, would be reduced – i.e. the HDC would suffer a reduced income if the levy rate remained at 0.5 per cent – and the income generated would be more unstable.

Figure 11 indicates that reducing the levy threshold to a *de minimis* level and abolishing the system of allowable deductions would increase the income generated by the levy but overall growers would be likely to view the new arrangements as less equitable than the current system. However, as the combination of lowering the threshold and removing allowable deductions would significantly increase the levy income there would be scope to reduce the rate below the existing 0.5 per cent. A key question therefore, arising from this solution is how would the growers view it? Figure 11 indicates that the trade off of a lower levy rate in return for the removal of allowable deductions and a *de minimis* threshold could result in a more equitable system but much would depend on the amount by which both the threshold level and the levy rate were reduced. From the AHDB's perspective there would also need to be an assurance that the system would be easier to administer as well as continuing to generate, on a reasonably stable basis, the necessary funds. Below are set out some calculations designed to test the system.

Reducing the threshold

Turning first to the issue of the threshold, Section II argued that the current threshold of £60,000 is indefensible. This conclusion is based principally on the outcome of such a relatively high threshold; namely a minority of apple and pear growers bear the cost of the levy and this cannot be defended as equitable. The inequity is compounded by the absence of a coherent justification for such a high threshold. Converting the old area based levy threshold of two hectares on to a sales revenue basis suggests a threshold of around £20,000. As observed above, the only justification for a threshold is the cost of actually collecting the levy. Placing growers' details on the system and checking growers' returns are costs that are incurred regardless of whether or not they pay a levy. There are the costs of enforcement – in some cases possibly involving litigation – but these costs cannot be advanced to justify a threshold of £60,000. Equity demands a much lower threshold, in my view a threshold of £20,000 should be seriously considered.

What would be the impact of reducing the £60,000 threshold on HDC's levy income? One way to approach this calculation is to make use of the calculation that currently the average net sales revenue for levy payers is £8,464 per hectare. Table 5 is an attempt at sensitivity analysis. It shows the impact on levy revenue from apple and pear growers if the threshold for payment is reduced below the current £60,000. The calculations are based on the heroic assumption that the average net sales revenue per hectare remains at £8,464 and that all apple and pear producers – including the 16 who currently exercise their right to allocate zero per cent to apples and pears – choose to allocate 100 per cent of their levy to the apple and pear fund. I leave others to judge how likely this last assumption is to become reality if growers generally believe the system to be more equitable following a reduction in the threshold.

Table 5 starts with a threshold of £20,000 and shows the effect of progressive increments up to a threshold of £50,000. At the lowest threshold of £20,000 – based on the foregoing assumptions – practically all growers with commercial orchards above 2

hectares become levy payers. As a result the number of paying members rises by 176 – an increase of 95 per cent and the HDC levy revenue rises by more than £57,000, an increase of 18 per cent. Increasing the threshold to £30,000 cuts the number of payers by 43 but the additional revenue raised still exceeds 16 per cent: up £52,174. The final two increments shown in the table repeat this pattern but even the smallest reduction in the threshold to £50,000 results in a 47 per cent rise in the number of levy paying growers and a 13.5 per cent increase in HDC revenue of £43,166.

Table 5. Sensitivity analysis

Turnover threshold	£20,000	£30,000	£40,000	£50,000
Additional levy	176	133	108	87
<i>% increase</i>	95.1	71.9	58.4	47.0
Additional revenue ¹	£57,495	£52,174	£47,831	£43,166
<i>% increase</i>	18.0	16.4	15.0	13.5

¹*Average net turnover per hectare = £8,464:*

In reality the average net sales revenue per hectare for the new levy payers may average less than the assumed £8,464. The effect of this can be demonstrated with an extreme example. Say, the average net sales revenue per hectare for the incoming 176 growers, under a £20,000 threshold, is just half the current £8,464 i.e. £4,232. The increase in the number of hectares paying a levy under this scenario is 19 per cent with the effect that the increase in HDC revenue falls from the £52,179 shown in Table 5 to £28,747 – representing a 9 per cent increase. This is the outcome of a rather extreme assumption and it would not be unrealistic to assume that with a £20,000 threshold the HDC's levy revenue would increase by around 10 per cent – approximately £30,000 – but more importantly the number of levy payers would rise by around 170 bringing the proportion of levy payers from its current 47 per cent – including those who have not returned a form – to more than 90 per cent.

Some £9,000 of the addition to revenue shown for each threshold scenario in Table 5 is due to the assumption that the 16 growers currently diverting all of their apple and pear levy would revert to allocating it all to apples and pears. This assumption implicitly assumes that the 16 apple and pear growers are diverting their revenue because of their frustration with the high threshold and once it is lowered they would allocate their levy to apples and pears. Even if this assumption is unfounded and none of the £9,000 is switched back to apples and pears the outcome would still be an increase of some £20,000 in levy income and greater acceptance of the new system by those growers currently paying the bulk of the levy.

Two responses to this proposed improvement are set out in Appendices II and III. The first (Appendix II) from 'industry representatives' comprising British Independent Fruit Growers Association, English Apples and Pears and the National Farmers Union concludes that '*we agree with the proposal to reduce the current minimum turnover threshold to £20,000*'. They go on to point out that it is anomalous that cider growers

are not included in the levy arrangements but the appropriateness of bringing them into line with other apple and pear growers was specifically excluded from the aims of this report – see pages 3 and 4.

The second response, (Appendix III) from the British Independent Fruit Growers Association, while agreeing with the proposed lowering of the levy threshold suggests that the threshold should be lowered further to £15,000. In principle I have no difficulty with this suggestion, the £20,000 threshold was suggested as being roughly in line with the gross revenue generated from two hectares of apples and pears but providing the levy collected exceeds the cost of collection a £15,000 threshold should not be ruled out.

Simplifying deductions

Section II argued that in effect the present system of deductions, while logical and defensible, is also a source of inequality. Figure 11 shows a crucial trade-off. If the deductions are to be made more equitable they would have to be expanded to include expenditure on items such as grading, storage and marketing. But this would increase the complexity and administration for both growers and the AHDB. The NFU's proposed solution to this problem, outlined above, is to use 'standard costs' rather than actual costs. The effect of this, however, would be that most growers would pay a reduced levy necessitating an increase in the 0.5 per cent rate and the resort to 'standard costs' would not address the issue of inequality. It would penalise high spending growers and over-compensate those that spend little or nothing on value adding activities. In addition to greater equality another aim sought by apple and pear growers is the simplification of the levy system. The use of 'standard costs' might simplify the system but, if this is a major objective for growers, the way to achieve it is by the complete removal of the system of allowable deductions.

The system of deductions is a genuine attempt to get at the primary value of apples and pears but in attempting to adjust for one issue – say retail sales – another; namely, inequality, is created. This arises from the lack of similar treatment for other items of expenditure likely to result in a higher sales revenue. Removing all deductions has the attraction of simplification but it would not be acceptable to take such action and maintain the levy rate at 0.5 per cent, nor would it be necessary. The effect of the removal would be to significantly increase the HDC's levy revenue and this is not the purpose of this report nor the intention of AHDB or Defra. In return for removing the system of deductions the levy rate could and should be lowered. The one group of growers, or more correctly, group of sales that would be penalised by the removal of all allowable deductions would be direct retail sales. However, it seems accepted by the AHDB that retail sales represent only a small proportion of sales¹⁸ (p4) for the vast majority of commercial growers. Against this must be set the benefit for those growers producing a higher value crop involving high expenditure on grading and marketing – for which they currently are not allowed to make deductions – who would gain the advantage of a lower levy rate. If the aim is to generate a similar total levy income to that raised in 2008 then in compensation for removing the system of permissible deductions the rate could be reduced to about 0.35 per cent. This is demonstrated in Table 6.

Table 6 shows three alternative scenarios – it will be appreciated that a very large number of alternative scenarios could be generated – the essence of what they show would not vary greatly for any realistic scenario. The assumption lying behind the scenarios is that each enterprise is generating £100,000 of sales and each scenario shows a different proportional distribution of sales between wholesale (including the multiples), bins, processing and retail. The deduction for retail is fixed at 50 per cent but the deductions for wholesale e.g. packing materials and haulage depend on certified grower estimates. As can be seen the deduction varies across the scenarios but a 30 per cent deduction to represent the current situation appears in line with growers’ estimates as represented in the NFU’s submission¹⁷.

Table 6. Alternative deduction scenarios

	Wholesale	Bin sales	Processing	Retail	Total sales	Levy
Deduction as % of sales	30	0	0	50		
% distribution of sales	80	5	5	10		
Value of sales £	56,000	5,000	5,000	5,000	71,000	355
Deduction as % of sales	20	0	0	50		
% distribution of sales	75	0	5	20		
Value of sales £	60,000	0	5,000	10,000	75,000	375
Deduction as % of sales	25	0	0	50		
% distribution of sales	70	5	20	5		
Value of sales £	52,500	5,000	20,000	2,500	80,000	400

The levy actually paid under each scenario is shown in the right hand column and the average for all three scenarios is £377. This suggests that in return for removing the system of deductions the levy rate could be reduced to around 0.37 per cent. As a check on this figure the AHDB data on levy payments was analysed to estimate the effect of removing all deductions and lowering the levy rate to 0.35 per cent. The effect of this is to raise the average sales revenue per hectare on which the levy is calculated to £10,580. It also has the effect of bringing all 182 apple and pear growers who have returned a form to the AHDB into the calculation given a threshold of £20,000. The estimated outcome of these changes is an increase of some £11,000 in total levy revenue – 3.5 per cent – allowing some margin for the likelihood that the gross turnover per hectare for smaller growers might be lower thereby reducing marginally the estimated average of £10,580.

It matters significantly as to what value this lower rate is applied to. To be clear it should be the sales revenue i.e. the product of the gross price paid per tonne and the total tonnes sold, less any rebates or discounts paid to the customer. Most growers bear the cost of

haulage but if a customer pays for the haulage from the supplier to the customer's depot this should in principle be added to the sales revenue to avoid an inequality. One of the aims in removing the system of deductions was to remove the cost to the grower of calculating the deductions, therefore in this case it would be appropriate to take a suggestion from the NFU's submission and – in the minority of cases where the customer bears the cost of haulage – a standard cost of 8 per cent should be added to the sales revenue.

The separate response from BIFGA (Appendix III) does not comment on the proposal to remove all deductions in return for a lower percentage levy. The 'industry representatives' response (Appendix II) is ambiguous while it observes that the *'reduction in overall levy rate, would certainly remove much of the complication (and cost) that has been introduced with the new system'* and that *'the principle of this is fine and removing all deductions has obvious attractions'* it goes on to argue that removing all deductions *'fails to allow for the huge added value costs of growers who pack fruit for multiple retailers'*. I am mindful of the variation in the costs facing growers who sell to different markets but as set out in Section II of this report it will never be possible to devise a levy system that is not only fair to all but also removes the scope for cheating without adding enormously to the costs of collection.

The 'industry response' includes a suggested alternative to removing deductions which involves an overall increase in the value of deductions for those supplying wholesale markets. The additional problem with this suggestion – in addition to those set out in Section II – is that the effect would be to lower the total revenue collected by the AHDB from apple and pear growers. It is impossible to be precise but we do know that a very large proportion of the apple and pear crop is sold to the wholesale market and if we take the example provided in Appendix II as a guide the levy rate would need to rise to 0.0072 per cent to compensate. I am not persuaded that increasing the scope of deductions is a better alternative to removing them, on the contrary I believe it would only add to complications and costs.

Conclusions

The conclusion of this report is that markedly reducing the threshold for paying levy to around £20,000, removing the system of deductions and lowering the levy rate together have the potential to achieve five major benefits:

- The removal of the widespread belief amongst larger apple and pear growers that the current system is inequitable;
- The bringing in to the levy system the vast majority, if not all apple and pear growers, thereby helping to ensure all who benefit pay a contribution;
- The ending of the scope for growers to exaggerate permissible deductions will be ended and with it the burden involved in calculation these deductions;
- The costs of administering the apple and pears levy system will be reduced; and
- The HDC will have greater certainty and stability in the annual level of funds raised by the levy.

Other sectors

This report has been prepared as part of the HDC's commitment to review the new levy arrangements for commercial apple and pear holdings. For this reason this report has focussed mainly on the apple and pear sector, however, it is recognised that what is proposed above has potentially widespread implications for the horticultural statutory levy system in general. Three observations are therefore appropriate:

- There is little point in offering to review the levy arrangements for apple and pear growers if change is ruled out because other sectors are content or do not want to consider changes to their levy systems;
- Although the main focus of this report has been the apple and pear sector the analysis indicates that there is no fundamental difference in either cost structures, market conditions or the nature of the product that would prevent what is proposed here being applied generally; and
- Therefore this report provides strong, if not conclusive, support for the view that if judged appropriate the levy systems for other horticultural sectors should investigate the benefits of applying the changes outlined above.

Further work

The proposals set out above have been put forward together with basic scenarios in order to test their credibility in terms of fund raising. If they are in principle acceptable to apple and pear growers, as well as the AHDB and the HDC, more detailed scenarios should be undertaken so that decision makers can be satisfied that the risks of a shortfall in levy funding have been minimised. Scenarios are valuable aids to decision makers but it is difficult to assess the beneficial impact on grower attitudes of a positive move by the HDC to reduce the inequality that is inherent in the current system together with the substantial simplification that would accompany the removal of deductions

The 'industry representatives' (Appendix II) raise a *'concern that the Defra figures on inputs – presumably a reference to the Defra data used in this report – do not accurately reflect the position 'on the ground'. For this reason, it is generally felt that the HDC should itself undertake a definitive study on actual costs in the industry across a range of different growers'*. It would be foolish for anyone to claim that there are no inaccuracies in the data published by Defra but it is the case that the collection and management of the data are overseen by objective, professional statisticians. I am therefore content that the data published by Defra is the most accurate available and what the 'industry representatives' would need to do to persuade me otherwise is a) provide objective evidence of systematic bias in Defra's data and b) demonstrate that on a balance of probabilities the outcome of HDC carrying out a comprehensive survey would yield results that would justify the costs.

Appendix I References and notes

1. Defra, *Review of Agricultural and Horticultural Levy Bodies – Final Report, the Radcliffe Report*, October 2005
<http://www.defra.gov.uk/farm/policy/levy-bodies/pdf/levy-radcliffe-review.pdf>
2. Defra, *June census*,
http://www.defra.gov.uk/esg/work_htm/publications/cs/farmstats_web/2_SURVEY_DATA_SEARCH/COUNTY_SIZE_GROUP_DATA/fd_tables_and_ah_tables_excel.htm
3. The 1992 reform of the Common Agricultural Policy (CAP) was initiated by the then Agricultural Commissioner, Ray McSharry, and started a process of reforms that over the ensuing years have steadily removed the link between production and farm income by the introducing of a system of direct payments and the phasing out of market support. The intention, *inter alia* has been to open up the agricultural industry to greater competition and force farmers to become more responsive to market demands.
4. Defra, *Basic Horticultural Statistics - 2008*, Fruit Details, Table 4
<https://statistics.defra.gov.uk/esg/publications/bhs/2008/fruit%20details.xls>
5. There is a slight discrepancy between the total area of commercial orchards recorded by the June Census and Basic Horticultural statistics. The latter statistics have been used as they provide a breakdown between the various crops.
6. Defra's statistics group provided a special set of census data identifying holdings with commercial orchards of less than two hectares.
7. The values per hectare are calculated by dividing the total value of UK output for each crop by the total area for each crop as recorded in the June census. The total value is calculated by Defra as part of its annual review of agriculture and refers to a calendar year. Defra calculates farm gate prices by adjusting the data it collects weekly on wholesale prices and it obtains data on yields by monitoring on a monthly basis the volumes of fruit sold by domestic business over the course of a year.
8. Defra, *Agriculture in the United Kingdom 2008*, Table 5.12
<https://statistics.defra.gov.uk/esg/publications/auk/2008/Table%205-12.xls>
- 9 Defra, *Economic Evaluation of the Apple and Pear Research Council*, The Centre for Agricultural Strategy & the Department of Horticulture & Landscape, University of Reading. <https://statistics.defra.gov.uk/esg/evaluation/aprc/wholerep.pdf>
10. *The Agricultural Budgeting and Costing Book No68 – May 2009*, Agro Business Consultants, Melton Mowbray
11. According to notes supplied by HDC permissible deductions total some 20 per cent on average across all HDC crops

12. HDC has informed me that the threshold is based on the threshold for VAT registration which was £64,000 in 2007 and now stands at £68,000.

13. Defra, *Basic Horticultural Statistics - 2008*, Fruit Details, Tables 4 and 6
<https://statistics.defra.gov.uk/esg/publications/bhs/2008/fruit%20details.xls>

14. Defra, *Basic Horticultural Statistics - 2008*, Fruit Details, Tables 11 and 13
<https://statistics.defra.gov.uk/esg/publications/bhs/2008/vegetable%20details.xls>

15. AHDB data for individual holdings showing the proportion and amount of levy allocated to apples and pears in 2008 in accordance with growers requests.

16. The data relating to the areas on commercial apple and pear holdings available for the preparation of this report apply to the year 2007 and therefore the possibility must be allowed for that between the payment of the 2008 levy and the recorded area in 2007 there may have been changes in the areas of commercial orchards on these holdings.

17. NFU, *Draft Submission to the Horticultural Development Council on the Review of the 2008 levy for Top Fruit*,

18. AHDB, *Horticultural Return Guide, Levy for the period 1April 2007 to 31 March 2008*, Horticultural Sector

Appendix II: Industry Response to HDC report 'An economic evaluation of the apple and pear levy'

A meeting was held on Tuesday 14 July, 2009 of industry representatives comprising British Independent Fruit Growers Association, English Apples and Pears and the National Farmers Union, to discuss the report prepared by Sean Rickard for HDC on the change to the calculation to the HDC levy of top fruit producers. This response is submitted on behalf of all three organisations.

The first point that we would like to make is that we very much welcome the report generally and its thoughts on addressing the inequity that has arisen. However, there are some observations made below.

Accounting periods:

We were of the understanding that the issue of accounting periods was being addressed. We would urge that this is formalised as soon as possible.

Lower payment threshold:

The industry remains committed to the support for the research and development work undertaken by HDC and maintains that as the majority benefit from this work in some form or another, the majority should support it by way of the levy. We agree with the proposal to reduce the current minimum turn over threshold to £20,000, which would equate roughly to the starting point for the previous system based on the number of hectares of orchards. The present situation where 53% of the industry is not currently paying a levy means that the remaining 47% are paying a disproportionate amount. The report states that there will be a net benefit when costs of collection are taken into account.

There appears to be a further anomaly in that whilst those whose fruit goes for production of juice currently pay the levy, those whose juice ultimately ends up as cider, currently do not. We understand that there are some changes proposed to the independent funding of research and development in that sector of the industry, and suggest that these producers should also be brought within the scope of the HDC top fruit levy.

Removal of deductions:

This suggestion, coupled with a reduction in overall levy rate, would certainly remove much of the complication (and cost) that has been introduced with the new system, however please note our comments below.

Lower levy rate:

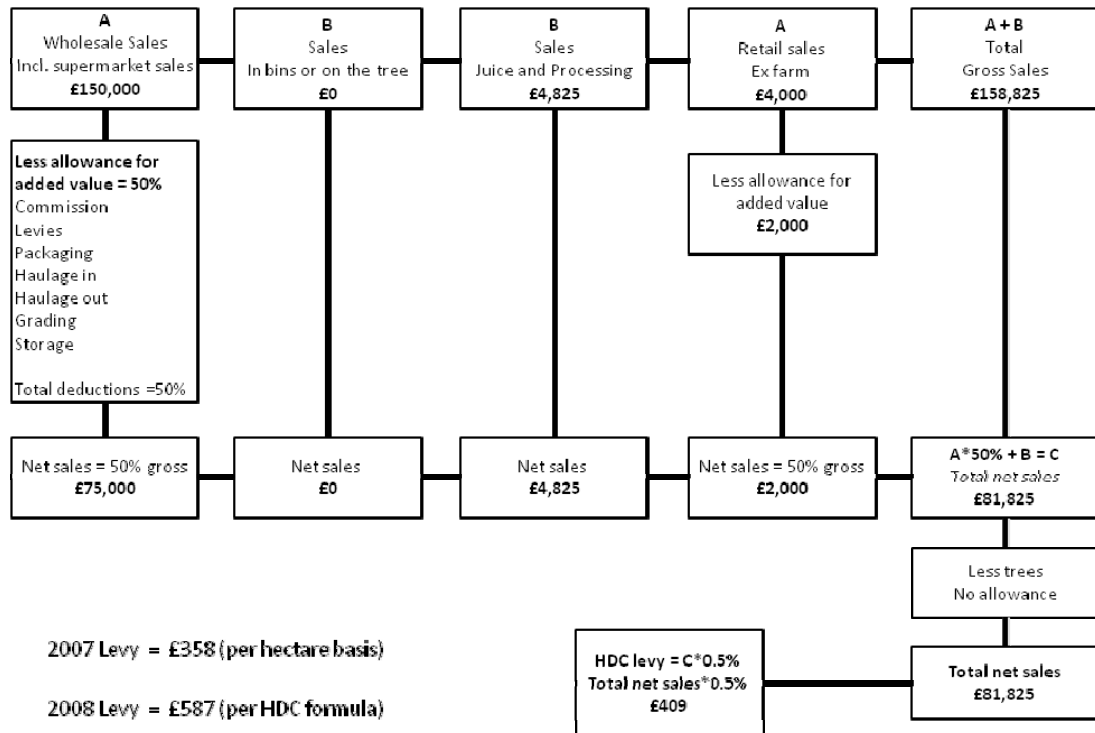
To take account of the fact that a larger figure would be used as the basis for calculating the levy, it is suggested that, to maintain current levy income, the rate could be reduced to 0.35%. Again, the principle of this is fine and removing all deductions has obvious attractions but it fails to allow for the huge added value costs of growers who pack fruit for multiple retailers. There is a distinct difference between these producers and those who sell 'at foot of ladder' (either bulk or bin). We propose that gross sales need to be split into two main categories – firstly wholesale and retail sales which would have a 50% deduction allowance and secondly, bulk sales on the tree or in bins – which go

somewhere else for processing or packing. This is a relatively simple and easy split to make and to check. The proposal to cut the levy to 0.35% could be viewed unsympathetically by other sectors as it could look as if top fruit growers are paying less. With the proposal of the single 50% deduction for fruit being packed and graded, the rate stays at 0.5%. A worked example is attached and you will see that this more closely follows the methodology of the existing calculation. Keeping the same percentage levy of 0.5% may make the proposal easier to adopt and much less contentious for other sectors of horticulture.

Defra figures used within the report:

We appreciate that Mr Rickard had to utilise what information there was generally available, and that Defra is an independent source, however there is concern that the Defra figures on inputs do not accurately reflect the position 'on the ground'. For this reason, it is generally felt that the HDC should itself undertake a definitive study on actual costs in the industry across a range of different growers.

EXAMPLE OF PROPOSED NEW FORMULA FOR HDC LEVY ON APPLES



Appendix III: Response from the British Independent Fruit Growers' Association (BIFGA)

Andrew Tinsley
A.H.D.B

Dear Andrew

As you probably know BIFGA and the majority of fruit growers were happy to go along with the acreage payment as in the past but have had to adapt to the unsatisfactory scheme which has now been forced upon us.

It seems we have no choice in this matter and therefore feel that as a last resort we still may have a say on the new scheme's construction.

As we understand it at present 50-60% of fruit growers are paying for 100% of the levy. This is complete madness and therefore suggest that if we have to go down this route, at least the minimum turnover could be lowered to say £15,000 which could also take account of all sales including cider and processing.

Even growers with small acreages of fruit benefit by research data, such as Solas, pest and disease advice etc. This at the moment would only be paid for by 60% of fruit producers.

It is worth remembering that the whole concept of paying for research was voted on by top fruit growers, it would be a great shame to alienate a large percentage of them when the next Quinquennial review is held.

Regards

Clive Edmed