



Analysis of Gross and Net Margin Data Collected from the Farm Business Survey in 2004/05 and 2005/06

Paul Wilson

Rural Business Research Unit
University of Nottingham
Sutton Bonington Campus
Loughborough
LE12 5RD
T: +44 (0) 115 951 6070
F: +44 (0) 115 951 6089
E: paul.wilson@nottingham.ac.uk

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Executive Summary

Background

- Developments in the Farm Business Survey (FBS) methodology introduced in 2004/05 have led to the production of gross and net margin data for agricultural enterprises
- The net margin methodology relies, in part, upon input-output coefficients in apportioning the fixed costs of production; for 2005/06 changes to the Common Agricultural Policy (CAP), with the removal or reduction of production-linked subsidies, necessitated changes in the input-output coefficients and these were introduced to the FBS methodology in 2005/06
- Prior to this study, research to compare FBS margin data with Special Study (SS) margin data had also been undertaken for combinable crops, a range of livestock enterprises, and potatoes and sugar beet; the findings of this research informed the FBS methodology from 2006/07 onwards
- This research aims to compare gross and net margin data with a view to highlighting differences in performance between years, and across performance groups, whilst additionally identifying unrealistically high or low average results, and to outline the methodological changes introduced to the FBS
- The data sources used within this study are enterprise level data for 24 enterprise categories covering a range of the major crop and livestock enterprises for 2004/05 and 2005/06 from FBS returns for England
- Where sample sizes are sufficient, the analysis undertaken tests for significant differences in outputs, costs and returns between 2004/05 and 2005/06 and also tests for differences between performance groups (as defined by gross margin performance) within each year
- The removal of production-linked subsidies is directly quantified for combinable crop enterprises within the analysis; for beef and sheep enterprises the value of subsidy is estimated using a reduced data set of observations, where sufficient enterprise specific returns (e.g. Lowland ewes) are present within the relevant animal category (e.g. sheep)

Cereals

- The loss of production-linked subsidies for cereals in 2005/06 is the most substantial production change for barley and wheat enterprises, leading to lower output, gross margins and net margins; whilst a limited number of cost differences are identified between the two years, no structural change in response to the new policy environment is noted in 2005/06
- The performance group analysis for cereals demonstrates that the upper performance group achieved higher yields and prices, typically lower variable costs were observed (than the lower performance group); despite having higher fixed costs net margins were significantly and substantially greater for the upper performance group

- Fixed costs in barley production, particularly labour costs, were noted as being excessively high, both in relation to findings from previous research and also in relation to the costs attributed to winter wheat production; the input-output coefficients used within the fixed cost apportionment methodology are identified as the reason for these unrepresentative costs

Combinable Break Crops

- For 'combinable' break crops (beans, peas and oilseed rape (OSR)) the reduction / removal of production-linked subsidies led to a significant reduction in output, gross margins and net margins; cost differences between 2004/05 and 2005/06 were most clearly defined for winter OSR
- The performance group analysis for break crops identified the upper performance group as typically achieving higher yields (and prices), lower variable costs, higher fixed costs, yet resulting in significantly greater net margins

Potatoes

- In potato production, higher prices in 2005/06 led to higher output and higher gross and net margins than achieved in 2004/05; performance group analysis showed that the upper performance groups achieved higher yields, higher prices, comparable variable costs and higher fixed costs, resulting in greater net margins

Sugar Beet

- For sugar beet production, differences between the two years existed for a number of fixed costs categories, yet net margins were not significantly different between the two years; performance group analysis demonstrated a clear pattern of the upper performance groups that grew larger areas, achieved higher yields and whilst incurring higher fixed costs, accrued significantly greater net margins

Fresh Vegetables

- Fresh vegetables (field scale, market garden, protected) demonstrate a wide variation in performance between years often leading to no significant differences being observed with the exception of protected crops for which 2005/06 represented a lower input – lower output production practices in comparison to 2004/05; performance group analysis for field scale production shows the upper performance group represents a high input – high output system
- For protected vegetable production the large variation in data between the two years is unlikely to represent a real-terms change in the production and performance of the sector, but is indicative of sample changes between the two years

Soft Fruit and Top Fruit

- Soft and top fruit enterprise data is relatively small and modest, respectively, in relation to sample size; the consequence of this is that whilst variation between years appears to be present, significant differences are limited to greater yields and gross margins in 2005/06 for top fruit enterprises, whilst

enterprise data for soft fruit is indicative of large sample changes between the two years

- As noted for other enterprises, the upper performance group for top fruit is characterised by a higher input – higher output system

Poultry

- In poultry production, no significant differences were noted between the two years for broiler production, whilst for laying hens only other fixed costs differed significantly between the two years; overall for poultry production results were very broadly comparable between 2004/05 and 2005/06
- Laying hen enterprise sample sizes permitted performance group analysis to be undertaken and demonstrated that, when measured per bird, the upper performance group represented a higher input – higher value of output system, with average flock size indicating these enterprises are likely to be organic / free range flocks

Pigs

- Breeder-finisher pig units recorded no significant difference in outputs, costs and margins between 2004/05 and 2005/06 albeit that net margins were negative in 2004/05 (-£9/sow) and positive (£18/sow) in 2005/06.
- Performance group analysis shows that the upper performance groups are typified by larger herds achieving higher output and using greater paid labour than the lower performance groups; variable and total costs were significantly greater for the upper performance group in 2005/06 but were not significantly different in 2004/05.

Milk Production

- Dairy cow enterprise data demonstrated a significant reduction in gross margin from 2004/05 to 2005/06, which coupled with increased fixed costs between these two years, led to a reduction in net margin per cow by approximately £100/cow in 2005/06 in comparison to the preceding year
- Dairy performance group analysis across both years clearly identifies the upper performance group as having larger herds, achieving higher output, incurring higher variable and fixed costs, yet retaining a significantly greater net margin

Suckler Cows

- The main performance difference for suckler herds (LFA and Lowland) between the two years was the loss of subsidy, and whilst it has not been possible to directly estimate the value of this subsidy, the reduction in output, gross margin and net margin are clearly linked to this policy change; no differences in total costs are identified between the two years
- Suckler herd performance groups analysis characterised the upper performance groups as achieving higher output, from lower variable costs and higher fixed costs that led to greater net margins; whilst these differences exist, none of the performance groups achieved positive average net margins in either year

Finished Beef Production

- Fat cattle (from dairy bred calves and also from suckler bred weaned calves and stores) recorded a significant reduction in output, gross margin and net margin resulting from the loss of beef headage payments in 2005; total costs did not differ between years, but variations in the value of output attributed to actual beef production were estimated to have occurred
- Performance group analysis for fat cattle enterprises characterised the upper performance group (in relation to £/ha) as achieving greater net margins from a high input – high output production system; whilst the wide variation in actual beef production systems makes such analysis less transparent, it is instructive to note that the upper performance groups (in 2004/05) returned positive net margins, whilst the average performance in both years led to negative net returns (and substantially negative for 2005/06 across the majority of enterprises)

Sheep Production

- Results for breeding ewes (LFA and Lowland) highlight the loss of subsidy as the main difference in outputs and returns between 2004/05 and 2005/06; whilst variable costs do not differ between years, an increase in fixed costs has exacerbated the loss in subsidy to return significantly and substantially lower net margins in 2005/06
- Performance group analysis for breeding ewes shows that the upper performance groups achieved higher output whilst incurring higher fixed costs, yet leading to higher net margins; note however that net margins for all performance groups in each year (with the exception of the upper LFA group in 2004/05) are, on average, negative, demonstrating the unprofitable nature of these enterprises both with and without subsidies

Overviews on CAP reform and performance

- The changes to the CAP, with the reduction or removal of production-linked subsidies, has led to significant reductions in output, gross margins and net margins for combinable crop, beef and sheep enterprises; note however that land costs attributed to the enterprises have (largely) not differed between these two years, yet it could be argued that the value of land for production only (in comparison to holding land to receive the Single Farm Payment) would be significantly lower in 2005/06 than 2004/05
- Performance group analyses demonstrated that across all enterprises, when examined on a per hectare or per animal basis, the upper performance groups were higher input – higher output production systems in economic terms and additionally returned significantly and substantially greater net margins

Methodological Issues

- The results of the analysis demonstrate: a clear increase in fixed costs for winter OSR between 2004/05 and 2005/06; significant and substantially greater labour and fixed costs for barley production (in relation to previous research and similar crops); negative returns to sugar beet, with this argued to be due in part to an over-allocation of own farm labour and machinery costs for an enterprise that is increasingly reliant upon the use of contract services

- Previous research has examined margin data in combinable crop enterprises (Wilson and Robertson, 2006a), livestock enterprises (Wilson and Robertson, 2006b) and potato and sugar beet production (Wilson, 2006) which led to a series of recommendations for revising the input-output coefficients used within the FBS methodology for 2006/07 onwards
- Following presentation of these research findings at technical working group meetings, changes to the FBS methodology were implemented for 2006/07 which incorporated the findings of these studies
- The methodology used to determine gross and net margins from 2004/05 onwards has been demonstrated to be a largely robust mechanism for the allocation of costs and returns to enterprises, however the recent changes to the FBS for 2006/07 onwards will further enhance the robustness of the net margin results
- This report presents the most comprehensive set of robust gross margin data for the major enterprises in England for both 2004/05 and 2005/06 together with net margins that, on the whole, provide a sound indication of the profitability of these enterprises; the two years presented capture the change in performance following the introduction of the most radical agricultural policy change for decades
- The methodological improvements, introduced in 2006/07 to the FBS with respect to the collection and analysis of gross and net margin data, will provide farmers, advisors, researchers, government and policy makers with the most comprehensive set of enterprise level data ever produced for England

1. Introduction

1.1 Background

A methodology has recently been developed to collect enterprise level gross margin and net margin data from the Farm Business Survey (FBS). The methodology is still under development but the new approach of using FBS farms represents a major development in the collection of enterprise level data from government commissioned research. The background to this methodological development includes an anticipated reduction in the number of enterprise specific Special Studies (SS). Such methodological changes to data collection involve different philosophical approaches; in terms of survey samples, a different sample of farms was used for each special study. SS data typically were derived from information on, and from discussion with the farmer / manager relating to, the particular enterprise in determining the costs and returns in what could be termed a "bottom-up" approach. By contrast the starting point for the FBS is the whole farm data, and hence determining costs and revenues to enterprises involves allocation of cost and returns from the overall farm business into the individual enterprises in a "top-down" approach. A clear advantage with this approach is that the enterprise level outputs and costs must be consistent with the whole farm. With special study methodology, because only one part of the farm was looked at in detail, there was no guarantee that the output and costs attributed to the enterprise could be reconciled at farm level when all enterprises were summed together.

Whilst certain costs (particularly variable costs) are more clearly attributable to individual enterprises, fixed cost allocation requires a methodological approach whereby the overall fixed cost element is apportioned to individual enterprises. For the FBS from 2004/05 onwards the apportionment of fixed costs has followed a formulaic approach that relies upon externally generated input-output coefficients to determine the appropriate apportionment between enterprises. This approach, which takes as one of its arguments the value of enterprise output relative to overall output, built upon the work of Hallam *et al.* (1999) by drawing upon input-output coefficients from their research. The input-output coefficients were originally generated, and used during a period when production-linked subsidies were present in UK agriculture for a wide range of enterprises. Changes to the Common Agricultural Policy (CAP), introduced in January 2005, led to the removal or substantial reduction of production-linked subsidies, and thus led to reductions in the overall, and relative, output for enterprises and this necessitated a methodological change prior to the collection and analysis of data for the FBS accounting year 2005/06.

1.2 Methodological Changes from 2004/05 to 2005/06

The apportionment of fixed costs introduced in 2004/05 relied heavily upon the input-output coefficients used. For 2005/06 it was necessary to review these coefficients and hence the analysis and results from Hallam *et al.* (1999) were reconsidered by Williams and Bailey (2006) in order to ensure that the input-output coefficients underlying the methodology were appropriate for those enterprises for which production-linked subsidies no longer existed, or were substantially reduced.

Following Williams and Bailey's (2006) review, the input-output coefficients used in Section M of the FBS fieldbook were updated to reflect the impact of the loss, or major reduction, of enterprise subsidy.

1.3 Summary of Further Research

In addition to the methodological changes following the changes to the CAP, the gross and net margin methodology, and results flowing from the gross and net margins modules, has recently undergone further analysis. Two commissioned research projects compared and analysed FBS margin data with margin data derived from SS data. Wilson and Robertson (2006a) analysed data from the FBS and SS sources for the 2004/05 accounting year for cereals and oilseeds. Their main conclusion was that broad differences in variable costs were not identified, however differences in fixed costs were observed between the FBS and SS sources. Wilson and Robertson (2006b) analysed the fixed cost data relating to a range of livestock enterprises, from FBS and SS data, and observed that whilst broadly similar fixed costs were often observed between the two data sources, the coefficients underlying the FBS apportionment of fixed costs were not appropriate. Further, Wilson (2006) undertook analysis of labour, machinery and contract costs in potato production and sugar beet production. The overall conclusions of these studies, was that the methodology underlying the apportionment of fixed costs in the FBS was appropriate, but that the coefficients used within the methodology led to inappropriate apportionment of labour and machinery costs; recommendations regarding changes to these coefficients for 2006/07 onwards were therefore proposed as detailed in section 5.2.

The focus of the above studies and note was to compare data between FBS and broadly similar SS data for the main agricultural enterprises, and to provide recommendations for improvement in the FBS methodology where appropriate. However, these studies were limited in their coverage of the enterprises examined, and specifically analysed FBS data in relation to broadly comparable SS data. Moreover, in relation to FBS data, these studies were limited to the accounting year 2004/05. Hence, whilst FBS and SS data have been compared and analysed in the above studies, there has been no comprehensive analysis of the FBS gross and net margin data for a more complete range of the major enterprises; nor comparison of the outputs, cost and returns to these enterprises in 2004/05 and 2005/06. The changes to the CAP introduced in January 2005 led to the large scale removal or reduction of enterprise, production-linked, subsidies in England. Consequently, the gross and net margins between 2004/05 and 2005/06 for a range of crop and livestock enterprises are anticipated to be substantially different between these two years. Of particular interest given this change in subsidy payment terms, is an examination of the costs of production between these two years for those enterprises where production-linked subsidies have been completely removed or substantially reduced; the interest in this area being the extent to which farmers have, or have not, readjusted their cost base to the new policy environment.

1.4 Aims

This project aims to address the above points through a comparison and analysis of gross and net margin data collected from the 2004/05 and 2005/06 Farm Business Surveys. In particular the project will

- (i) highlight the ranges in economic performance at enterprise level across farms and examine trends in output and cost data at the aggregate level between 2004/05 and 2005/06
- (ii) investigate cases where output and input values look unrealistically high or low at aggregate level
- (iii) provide a commentary of the key changes in FBS methodology for enterprise level data between the two years
- (iv) set the scene for the improvements expected in the 2006/07 data

1.5 Structure of Report

The following Chapter details the data sources and methodological approaches of the study. Chapter 3 presents results, whilst Chapter 4 discusses these results in the context of the objectives of this research. In Chapter 5 methodological development are outlined and concluding comments presented.

2. Methodology

2.1 Overview

The data sources and methodology followed are detailed below. Broadly the methodology involves comparing output, variable cost, fixed cost, gross margin and net margin data from the FBS in 2004/05 with the FBS in 2005/06. Where sample size is sufficient, an analysis of the high and low performing enterprises in comparison to each other, and the average for that year, is also undertaken. All data are weighted using the 'standard' FBS farm weight supplied with the farm level data accounting for the area or animal numbers in each case as appropriate.

2.2 Data source

Data for the FBS accounting years 2004/05 and 2005/06 for England was used as the source of data for this study. Data was largely taken from Section M of the FBS returns with appropriate other measures (e.g. livestock numbers) determined from other sections of the FBS returns as detailed in the footnote to Table 2.3. The enterprises examined are: 1) dairy cows; (2) LFA suckler cows; (3) lowland suckler cows; (4) fat cattle production from dairy bred calves; (5) fat cattle production from weaned suckler bred calves or stores; (6) lowland breeding ewes; (7) LFA breeding ewes; (8) laying hens; (9) broilers; (10) pigs – breeder finishers; (11) winter wheat; (12) winter barley; (13) spring barley; (14) beans for stockfeed; (15) peas for combining; (16) ware potatoes; (17) sugar beet; (18) winter oilseed rape; (19) spring oilseed rape; (20) fresh vegetables - field scale; (21) fresh vegetables - market garden; (22) fresh vegetables – protected; (23) top fruit; (24) soft fruit.

2.3 Sampling Frame and Outliers

In order to ensure comparability of the data series between the two years of interest, a number of domain boundaries were introduced. All enterprise returns had to record a positive enterprise output. Moreover, for annual crops each return had to have a positive seed cost entered in order to remain as a valid return. However, no other data constraints were imposed prior to analysis as a key aim of this research is to examine areas where outputs, costs or margins are unrealistically high or low, in order to inform methodological improvements. Hence, restricting the sample frame to remove outliers in the data set, would in this case, be inappropriate as the outliers may be due, in part, to the methodology underlying the data.

2.4 Sample Size Summary

The overall sample size for the respective enterprises are detailed in Table 2.1. Subject to overall sample size, upper and lower performance groups were obtained. These upper and lower performance groups are the upper and lower 25% (or 33%, see footnote to Table 2.1) when examined by gross margin performance. Gross margin performance was taken as the appropriate performance indicator due to previous research confirming that, for analysis to gross margin level, there are no substantial differences to Special Study (SS) sources, whilst at net margin level, the 2004/05 (2004) and 2005/06 (2005) data may be less robust than SS data for some enterprises.

Table 2.1: Sample Size by Enterprise, Year and Performance Category

Enterprise	Year	All	Upper	Lower
Spring Barley	2004	250	63	63
	2005	241	60	60
Winter Barley	2004	383	96	96
	2005	338	85	85
Winter Wheat	2004	685	171	171
	2005	657	164	164
Beans Stockfeed	2004	215	54	54
	2005	204	51	51
Peas combining	2004	67	17	17
	2005	75	19	19
Spring OSR	2004	50	17	17
	2005	21	-	-
Winter OSR	2004	284	71	71
	2005	313	78	78
Ware potatoes	2004	90	23	23
	2005	91	23	23
Sugar Beet	2004	174	44	44
	2005	165	41	41
Fresh vegetables – field scale	2004	69	17	17
	2005	56	15	15
Fresh vegetables - market garden	2004	28	-	-
	2005	35	-	-
Fresh vegetables - protected	2004	29	-	-
	2005	38	-	-
Soft Fruit	2004	21	-	-
	2005	19	-	-
Top Fruit	2004	58	19	19
	2005	48	16	16
Broilers	2004	20	-	-
	2005	24	-	-
Pigs – breeder finishers	2004	59	15	15
	2005	56	15	15
Hens	2004	49	16	16
	2005	52	17	17
Dairy	2004	333	83	83
	2005	321	80	80
LFA suckler	2004	193	48	48
	2005	191	48	48
Lowland suckler	2004	265	66	66
	2005	267	67	67
Fat cattle from dairy-bred calves	2004	72	18	18
	2005	80	20	20
Fat cattle from suckler-bred weaned calves and stores	2004	264	66	66
	2005	261	65	65
LFA ewes	2004	152	38	38
	2005	164	41	41
Lowland ewes	2004	322	81	81
	2005	316	79	79

For Spring OSR, Top fruit, and Hens, the upper and lower performance groups relate to the upper and lower 33% of observations due to sample size restrictions.

2.5 Returns, Costs and Margin Measurements

In order to compare appropriate measurements from the data it was necessary to establish the definitions of appropriate returns, costs and measurements of interest. Tables 2.2 and 2.3 below detail the data definitions in relation to the FBS source from Section M for crop and livestock respectively.

Table 2.2: Crop Codes and Definitions

Definition	FBS (reference codes relate to row numbers in Section M of the FBS spreadsheet)
Yield (Yield)	Total production of current crop (on a per ha basis) [Ref codes 2 divided by 1]
Arable Area Payment and other Subsidies (AAP)	Area Payment and other Subsidies (7)
Total Grain or Crop Enterprise Output (TOgrain)	Grain / Crop Enterprise Output may be recorded either gross or net of marketing costs or deductions (8-7)
Total Output (TotOut)	Arable Area Payment <i>plus</i> TOgrain <i>plus</i> Straw / by-product output (8+9)
Total Output excluding AAP (TOexcAAP)	Total Output <i>minus</i> Arable Area Payment (TotOut -7)
Seeds and Young Plants (Seeds)	Seeds and Young Plants (20)
Fertilisers (Fert)	Fertilisers (21)
Crop Protection (Sprays)	Crop Protection (22)
Other crop costs (OtherVC)	Other crop costs (excl. rent for bare land rented for less than 1 year) (23)
Fuel (fuel)	Enterprise specific heating fuel (24)
Total Variable Cost (TVC)	Total Variable Costs (25)
Gross Margin (GM)	Gross Margin (26)
Labour (Lab) (excludes farmer and spouse labour)	Wages and social security (paid) <i>plus</i> Wages and social security (unpaid) (51+52)
Contract (Contract)	Contract work (53)
Total Machinery (TMach)	Machinery rental <i>plus</i> Mach and equip valuation etc <i>plus</i> Machinery and equipment repairs <i>plus</i> Machinery and vehicle fuels and oil (54+55+56+57)
Total Other FC (TOFC)	Glasshouse Depreciation <i>plus</i> Permanent crops depreciation <i>plus</i> Mileage <i>plus</i> Electricity <i>plus</i> Water for all purposes <i>plus</i> Insurance (excl. labour and farm buildings) <i>plus</i> Bank charges <i>plus</i> Professional fees <i>plus</i> Vehicle tax <i>plus</i> Residual heating fuel <i>plus</i> Other general farming costs (58+59+60+61+62+63+64+65+66+67+68)
Total Fixed Costs exc. Land (TFCexcLand)	Total Fixed Costs before land (69)
Land (Land)	Total land expenses (71)
Total Fixed Costs (TFC)	Total Fixed Costs (78)
Net Farm Income for Enterprise (NFI)	NET FARM INCOME (ENTERPRISE) (line 26 minus line 78)
Value of Farmer and Spouse Manual Labour (FSLab)	Farmer (unpaid) <i>plus</i> Spouse (unpaid) minus Manager's managerial input (80+81-82)
Total Costs (TC)	TVC <i>plus</i> TFC <i>plus</i> FSLab (25+78+80+81-82)
Net Margin (NM)	NET MARGIN (83)

Table 2.3: Livestock Codes and Definitions

Definition	FBS (reference codes relate to row numbers in Section M of the FBS spreadsheet)
Forage area per head (Area)	Forage area allocated to enterprise (where appropriate) (on a per head basis) [Ref code 11 divided by animal number extracted – see footnote to table]
Output (TO)	Livestock Output (12)
Animal subsidy / compensation (where appropriate (Sub)*	See Section 2.7 for details
Concentrates (Conc)	Concentrated Feedingstuffs (14, 15, 16 as appropriate to species)
Coarse fodder (Crse.Fod)	Coarse fodder (17)
Vet and Med (V.Med)	Veterinary and Medicine costs (18)
Other livestock costs (OLC)	Other livestock costs (19)
Seeds and Young Plants (Seeds)	Seeds and Young Plants (20)
Fertilisers (Fert)	Fertilisers (21)
Crop Protection (Sprays)	Crop Protection (22)
Other crop costs (OtherVC)	Other crop costs (excl. rent for bare land rented for less than 1 year) (23)
Fuel (fuel)	Enterprise specific heating fuel (24)
Total Variable Cost (TVC)	Total Variable Costs (25)
Gross Margin (GM)	Gross Margin (26)
Labour (Lab) (excludes farmer and spouse labour)	Wages and social security (paid) <i>plus</i> Wages and social security (unpaid) (51+52)
Contract (Contract)	Contract work (53)
Total Machinery (TMach)	Machinery rental <i>plus</i> Mach and equip valuation etc <i>plus</i> Machinery and equipment repairs <i>plus</i> Machinery and vehicle fuels and oil (54+55+56+57)
Total Other FC (TOFC)	Glasshouse Depreciation <i>plus</i> Permanent crops depreciation <i>plus</i> Mileage <i>plus</i> Electricity <i>plus</i> Water for all purposes <i>plus</i> Insurance (excl. labour and farm buildings) <i>plus</i> Bank charges <i>plus</i> Professional fees <i>plus</i> Vehicle tax <i>plus</i> Residual heating fuel <i>plus</i> Other general farming costs (58+59+60+61+62+63+64+65+66+67+68)
Total Fixed Costs exc. Land (TFCexcLand)	Total Fixed Costs before land (69)
Land (Land)	Total land expenses (71)
Total Fixed Costs (TFC)	Total Fixed Costs (78)
Net Farm Income for Enterprise (NFI)	NET FARM INCOME (ENTERPRISE) (line 26 minus line 78)
Value of Farmer and Spouse Manual Labour (FSLab)	Farmer (unpaid) <i>plus</i> Spouse (unpaid) minus Manager's managerial input (80+81-82)
Total Costs (TC)	TVC <i>plus</i> TFC <i>plus</i> FSLab (25+78+80+81-82)
Net Margin (NM)	NET MARGIN (83)

Animal subsidy is calculated via a different methodology and drawing upon a reduced data set – see Section 2.7 for details.

Animal numbers are derived from the following codes: Broilers [Section E, Row 57, Column 11], Pigs [Section E, Row 43, Column 18], Dairy Cows [Section E, Row 04, Column 18], Laying Hens [Section E, Row 54, Column 18], LFA Breeding Ewes [Section E, Row 75, Column 18], Lowland Breeding Ewes [Section E, Row 29, Column 18], LFA Suckler Cows [Section E, Row 74, Column 18], Lowland Suckler Cows [Section E, Row 12, Column 18].

2.6 Statistical Tests

The measures derived in Tables 2.2 and 2.3 were subjected to a series of t-tests of comparable measures to test the null hypothesis (expectation) that there is no difference between the measures between the two years, or between performance groups within the same year, against the alternative hypothesis that there is a significant difference between the two measures. In undertaking these tests a "t-statistic" is calculated and this value is compared to "critical-t" values. Where the "t-statistic" is smaller in magnitude than the "critical-t" value, the null hypothesis of no significant difference between the two measures (e.g. average (mean) total output) is accepted and it is concluded that there is no statistical evidence that there is a difference between the two measures. Where the "t-statistic" is larger in magnitude than the "critical-t" value, the null hypothesis of no significant difference between the two measures is rejected in favour of the alternative hypothesis and it is concluded that there is a statistically significant difference between the two measures. The "significance" of the test result can be observed at different levels of statistical significance; in this study significance was tested at three levels; 95%, 99% and 99.9%. These significance levels represent the degree of probability to which there is a significant difference between the two sources, hence if the result of a t-test is that the null hypothesis is rejected in favour of the alternative hypothesis at the 99% significance level, this means that there is a 99% probability that there is a statistical difference between the two measures being compared. For comparisons between 2004/05 and 2005/06 data, the level of significance is recorded as detailed at the foot of the tables. For the performance group analysis, significance is noted where there is a significant difference between performance groups at 95% or above. Additionally, the tables note in which direction, and which performance groups record significantly different results from each other. For example, a result noted as (L<A,U) indicates that the lower performance group (L) recorded a significantly lower result than both the average, or all, enterprise performance group (A) and the upper performance group (U); note in this example that there is no significant difference recorded between the average (A) and the upper performance group (U). A further example, (L>A,U; A>U) indicates that the lower performance group recorded a greater result than both the average and upper performance groups, and that the average group additionally recorded a greater result than the upper performance group.

2.7 Subsidy Calculation in Livestock Enterprises

Beef and sheep enterprises in the 2004/05 accounting year received enterprise level subsidies. Whilst this revenue stream was also present for a number of crop enterprises, the collection of data within Section M, in relation to subsidy payments, differs between crop and livestock enterprises. For crop enterprises, the specific AAP for that enterprise is recorded within Section M as a separate revenue stream. However, for livestock enterprises, subsidy payments are included within the overall total output of the enterprise (hence it is not possible to directly disaggregate the subsidy element). Subsidy payments for livestock enterprises were captured in Section E of the FBS spreadsheet, and hence overall subsidy payments for the broad animal category (e.g. sheep, cattle) can be found. However, where a farm has multiple enterprises within an animal category that received subsidy it is not possible to determine the amount of subsidy that accrued to each individual enterprise. An example of this is a farm that has a Suckler cow enterprise and a beef finishing enterprise; with subsidies accruing to both enterprises, but being recorded as a combined subsidy receipt

for beef animals, it is not possible to disaggregate the subsidy payment to the relevant enterprise. Where a single livestock enterprise attracting subsidy is found in an animal category, the subsidy received can be directly attributed to that particular enterprise. Building upon this observation, for those farm businesses where a single livestock enterprise was present, within the broad animal category, the proportion of total enterprise output attributable to subsidy was calculated (using standard FBS weighting procedures). The results of the percentage of output attributable to subsidy payments was as follows: Fat Cattle from Dairy Bred Calves (26.92%); Fat Cattle from Suckler Bred Weaned Calves and Stores (43.25%); LFA Ewes (27.53%); Lowland Ewes (21.34%)¹. These results were used to attribute the relevant proportion of the overall total output for 2004/05 to subsidy payments, as shown in the tables in Chapter 3. For LFA Suckler and Lowland Suckler enterprises there were insufficient single enterprise returns, within the broad cattle category, to undertake the subsidy calculation and hence it was not possible to allocate Suckler cow subsidies to the Suckler enterprise due to small available sample sizes of single enterprise returns.

¹ The respective sample sizes for this analysis were 61, 74, 151, 323.

3. Results

3.1 Overview

Tables 3.1 and 3.2 provide an overview of the significance tests for differences between the means of the relative measures between 2004/05 and 2005/06 for crop and livestock enterprises respectively. Detailed result by crop enterprise are presented in section 3.2, whilst section 3.3 provides the details of the livestock enterprise results.

Table 3.1: Overview of Crop Results between 2004/05 and 2005/06

Measure	Spring Barley	Winter Barley	Winter Wheat	Beans	Field Peas	Spring OSR	Winter OSR
Ha Yield				*			***
AAP	***	***	***	***	***	***	***
TOgrain				**			***
TotOut	***	***	***	***	***	***	***
TOexcAAP				**			***
Seeds					*		
Fert			**			***	
Sprays	**			**			
OtherVC							
Fuel			**				
TVC							
GM	***	***	***	***	***	***	***
Lab							***
Contract						***	
TMach		***	***	***	**		***
TOFC	***	***	*				***
TFCexcLand			***	**			***
Land	*		***	**	**		**
TFC			***	***			***
NFI	***	***	***	***	**	***	***
FSLab		***	***				***
TC			***	***			***
NM	***	***	***	***	***	***	***
	Ware Pots	Sugar Beet	Fresh Vegetables (Field scale)	Fresh Vegetables (Market Garden)	Fresh Vegetables (Protected)	Soft Fruit	Top Fruit
Ha Yield				**	*		**
TOgrain	na	na	na	na	na	na	
TotOut	***				***		
Seeds							
Fert					***		
Sprays							
OtherVC					**		
Fuel					*		
TVC					***		
GM	***				***		
Lab	*				***		*
Contract							
TMach		**			***		
TOFC	***	***			**		
TFCexcLand					***		
Land	***	***			**		
TFC					***		
NFI	***						
FSLab	*	*			*		
TC					***		
NM	***						

* significant 95%; ** significant 99%; *** significant 99.9%. na = not applicable.

Table 3.2: Overview of Livestock Results between 2004/05 and 2005/06

Measure	Broilers	Laying Hens	Pigs	Dairy	LFA Suckler Cows
Animal No.					
Area					
TO					***
Conc					
Crse.Fod	na	na			
V.Med					
OLC	na	na			
Seeds	na	na	na		
Fert	na	na	na		
Sprays	na	na	na		
OtherVC	na	na	na		
TVC					
GM				*	***
Lab					
Contract					
TMach				***	
TOFC		*		***	***
TFCexcLand				***	
Land					
TFC				***	
NFI				***	***
FSLab					
TC				***	
NM				***	***
	Lowland Suckler Cows	Fat Cattle from dairy-bred calves	Fat Cattle from suckler-bred weaned calves and stores	LFA Ewes	Lowland Ewes
Animal No.					
Area				***	
TO	***	***	**	***	***
Conc	*				
Crse.Fod					
V.Med	*				
OLC					
Seeds					
Fert		*			
Sprays					
OtherVC					
TVC					
GM	***	***	***	***	***
Lab					
Contract					
TMach				***	***
TOFC	***	***	**		***
TFCexcLand				***	***
Land		***	***		
TFC		*		*	*
NFI	***	***	***	***	***
FSLab					
TC				***	***
NM	***	***	***	***	***

* significant 95%; ** significant 99%; *** significant 99.9%

Tables 3.1 and 3.2 provide overviews of the significance test results for the output, costs and margins between 2004 and 2005 for crops and livestock respectively (as detailed by enterprise in section 3.2). A number of points of interest are observed. In relation to crops, for beans, peas, spring barley, spring OSR, winter barley, winter OSR and winter wheat the loss or reduction in AAPs has led to significant differences in AAP, and total output including AAP (TotOut); corresponding there are significant differences for these enterprises for gross and net margin results. These observations were expected *a priori*. For these crops, a number of the cost categories are also found to be significantly different between 2004/05 and 2005/06, although no pattern emerges across these combinable crops in relation to cost differences. However, where cost differences do occur, these largely relate to fixed costs of production, rather than variable costs of production. In potato production, total output is significantly different between the years, impacting upon gross margin and feeding through to net margin, whilst differences in fixed costs are also observed. For sugar beet, significant differences exist for machinery, other fixed costs, land and farmer and spouse labour, but net margins are not significantly different. With the exception of yield for fresh vegetables from market garden produce, there are no significant differences for this enterprise. The same applies to fresh vegetables from field scale production. By contrast wide ranging differences are observed between years for fresh vegetables from protected production and the reasons for these differences are explored in more detail later in this chapter. For soft fruit, no significant differences are observed, whilst for top fruit, differences are confined to yield and gross margin measures. For vegetable and fruit production, the lack of statistical significance is in part due to small or modest sample sizes combined with large variations in the measurements around the mean.

From Table 3.2, for livestock enterprises, no significant differences are observed for broilers, whilst for laying hens, other fixed costs are the only category where a significant difference between the two years is. With respect to pigs, no significant differences are observed between the two years. For dairy cows, a significant difference in gross margin is noted (albeit that output and variable costs are not statistically different), whilst differences in machinery and other fixed costs impact on total fixed costs, total costs and net margin. For the beef (fat cattle), sheep (LFA and lowland ewes) and suckler cows (LFA and lowland), significant differences are observed in total output, gross margin and net margin; these all follow from the removal of enterprise specific subsidies for beef and sheep. With a small number of exceptions, variable costs do not differ for beef, sheep and suckler enterprises between the two years. However, differences in other fixed costs and land are noted for fat cattle enterprises; differences in other fixed costs are recorded for suckler enterprises; for sheep enterprises differences exist for machinery and other fixed costs (lowland only), which impact on total fixed costs and total costs, producing significant differences in these two cost categories.

3.2 Results by Enterprise

Tables 3.3 to 3.65 inclusive provide results of the t-tests of the enterprises examined, together with weighted means (mean) of the data, representing the average measures across the respective samples, plus the standard deviation (SD) which provides a measure of how disperse the data are from the mean; the standard deviation provides an indication of how far, on average, the individual (per individual enterprise) observations are away from the average. Small standard deviations (relative to the value of the mean) show that the observations are clustered around the mean and as the standard deviation increases, this indicates that the observations are spread wider from the mean.

For the comparison between the year 2004/05 (2004) and 2005/06 (2005) the t-statistic (t) is also provided for completeness, and the degree of significance is noted (see section 2.6). For the tables providing analysis by performance groups, significance is recorded as being achieved at 95% or above, and the difference between the groups (all [i.e. average], upper, lower) is noted to indicate how the differences relate to variation in performance between the groups.

3.2.1 Spring Barley

The average performance data for spring barley enterprises for 2004 and 2005 are presented in Table 3.3. The removal of production linked subsidies for cereals in 2005 has led to significant reductions in overall total output inclusive of AAP, gross margin, net farm income for the enterprise and net margin. Note however that no significant differences in output excluding AAP, total variable costs, total fixed costs and total costs are found. The results therefore indicate that performance (excluding the influence of AAP) is comparable between the two years of interest. Some significant differences are observed, these being total other fixed costs and land costs. It is instructive in this case to examine the labour and machinery costs for the enterprise across these two years as the methodological approach to apportion these costs from total farm costs flows from different coefficients calculated to account for the removal of subsidies in this enterprise; neither of these two important fixed costs is significantly different between the two years considered.

Table 3.3: Spring Barley Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	21.72	24.19	18.68	21.46	1.47	
Yield (t/ha)	5.38	1.29	5.32	1.24	0.52	
	£/ha	£/ha	£/ha	£/ha		
AAP	225	38	0	0	91.23	***
TOgrain	392	115	389	104	0.32	
TotOut	649	133	433	109	19.57	***
TOexcAAP	423	126	433	109	-0.96	
Seeds	40	15	40	16	0.06	
Fert	60	27	60	27	0.07	
Sprays	67	29	59	29	2.92	**
OtherVC	13	20	17	42	-1.25	
Fuel	1	3	1	3	1.81	
TVC	182	57	177	66	0.87	
GM	467	121	257	120	19.30	***
Lab	160	139	178	174	-1.24	
Contract	37	63	43	71	-1.00	
TMach	157	85	142	88	1.93	
TOFC	54	29	71	56	-4.41	***
TFCexcLand	408	164	434	225	-1.49	
Land	160	53	149	71	2.01	*
TFC	568	175	583	250	-0.77	
NFI	-101	199	-326	259	10.83	***
FSLab	133	157	172	192	-2.43	
TC	883	249	931	326	-1.85	
NM	-234	258	-498	325	9.96	***
<i>No. in sample</i>	250		241			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

Examining spring barley performance across performance groups in 2004, Table 3.4 shows that the upper performance group is characterised as achieving significantly higher yields (which are 60% greater than the average yield in the lower performance group), and the total output from grain indicates that the upper quartile additionally received an average of £80/t for their output in comparison to £63/t for the lower performance group. The large difference in output accounts, in the main, for the significant differences observed in the gross margin, net farm income for the enterprise and enterprise net margin results. The upper performance group incurred significantly higher costs than the lower performance group for contract, machinery and other fixed costs, in addition to greater other variable costs.

The performance group data presented in Table 3.5 for 2005 shows a similar pattern to that for 2004, with the main difference in gross and net margin performance being the higher yields and prices received by the upper performance group in comparison to the lower performance group. In 2005 the upper performance group incurred lower total variable costs (with fertiliser and other variable costs being significantly lower than the average and lower performance groups respectively), whilst the lower performance group incurred lower machinery costs. The significant difference in net margin between the upper and lower performance groups of approximately £160/ha flows from increased output in the upper performance group (£260/ha) but set against greater total costs (£100/ha more than the lower performance group), albeit that the latter cost difference is not statistically significantly different.

Table 3.4: Spring Barley Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	21.72	24.19	25.59	22.01	16.59	22.97	U>A
Yield (t/ha)	5.38	1.29	6.38	1.04	3.99	0.98	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	225	38	232	15	203	73	L<A,U
TOgrain	392	115	513	75	253	63	L<A,U;U>A
TotOut	649	133	789	91	477	73	L<A,U;U>A
TOexcAAP	423	126	558	94	273	69	L<A,U;U>A
Seeds	40	15	37	13	42	20	
Fert	60	27	62	29	55	30	
Sprays	67	29	65	30	64	32	
OtherVC	13	20	14	20	7	11	L<A,U
Fuel	1	3	2	4	1	2	
TVC	182	57	179	61	169	59	
GM	467	121	610	77	308	62	L<A,U;U>A
Lab	160	139	148	108	171	160	
Contract	37	63	50	79	24	40	U>L
TMach	157	85	168	93	136	84	U>L
TOFC	54	29	57	23	47	27	U>L
TFCexcLand	408	164	423	150	378	154	
Land	160	53	162	45	159	68	
TFC	568	175	585	161	537	169	
NFI	-101	199	25	153	-229	195	L<A,U;U>A
FSLab	133	157	126	132	146	195	
TC	883	249	890	228	851	277	
NM	-234	258	-101	210	-375	272	L<A,U;U>A
No. in sample	250		63		63		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.5: Spring Barley Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	18.68	21.46	21.25	25.29	17.26	19.43	
Yield (t/ha)	5.32	1.24	6.20	1.00	3.95	1.07	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	0	0	0	0	0	0	
TOgrain	389	104	495	67	267	65	L<A,U;U>A
TotOut	433	109	555	70	298	69	L<A,U;U>A
TOexcAAP	433	109	555	70	298	69	L<A,U;U>A
Seeds	40	16	37	15	43	20	
Fert	60	27	52	23	59	35	U<A
Sprays	59	29	53	26	57	27	
OtherVC	17	42	8	22	31	76	U<L
Fuel	1	3	1	4	1	4	
TVC	177	66	151	47	191	98	U<A,L
GM	257	120	404	71	108	81	L<A,U;U>A
Lab	178	174	207	229	167	162	
Contract	43	71	41	77	30	45	
TMach	142	88	168	115	119	55	L<A,U
TOFC	71	56	76	93	75	47	
TFCexcLand	434	225	492	322	390	183	U>L
Land	149	71	145	64	142	96	
TFC	583	250	637	363	532	214	
NFI	-326	259	-233	357	-424	233	L<A,U;U>A
FSLab	172	192	172	185	139	165	
TC	931	326	961	425	861	283	
NM	-498	325	-405	412	-563	268	U>L
No. in sample	241		60		60		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.2 Winter Barley

Table 3.6 presents the output, costs and margins for winter barley enterprises for 2004 and 2005. The changes in subsidy payments is the main distinguishing factor between the two years, with yields and total output excluding AAP not being significantly different. The absence of AAP has had a significant impact upon gross and net margins. Whilst no significant difference was observed in total fixed costs between the two years, 2005 recorded a significantly lower machinery cost, but with significantly greater total other fixed costs and the value of farmer and spouse labour. Nevertheless, the difference in net margin between the two years of £238/ha is almost exclusively accounted for by the loss of AAP which averaged £227/ha in 2004.

Table 3.6: Winter Barley Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	20.40	21.11	19.14	17.91	0.86	
Yield (t/ha)	6.57	1.19	6.40	1.22	1.86	
	£/ha	£/ha	£/ha	£/ha		
AAP	227	32	0	0	129.48	***
TOgrain	440	87	436	89	0.53	
TotOut	716	112	489	101	28.49	***
TOexcAAP	489	105	489	101	-0.03	
Seeds	39	14	38	12	1.42	
Fert	79	40	80	25	-0.66	
Sprays	90	28	88	35	0.80	
OtherVC	14	23	13	20	0.27	
Fuel	1	3	1	4	-0.39	
TVC	223	58	221	56	0.46	
GM	494	115	269	98	28.02	***
Lab	195	143	207	164	-1.01	
Contract	46	80	48	74	-0.25	
TMach	183	89	148	72	5.70	***
TOFC	59	27	70	39	-4.52	***
TFCexcLand	483	187	473	206	0.72	
Land	170	157	155	58	1.72	
TFC	654	236	628	214	1.54	
NFI	-160	247	-359	219	11.39	***
FSLab	132	149	171	180	-3.14	***
TC	1009	282	1019	295	-0.49	
NM	-292	278	-530	276	11.50	***
<i>No. in sample</i>	383		338			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

The results of winter barley enterprises by performance groups in 2004 is presented in Table 3.7. The upper performance group achieved significantly greater yields, which combined with an average price of £70/t (*cf* £63/t for the lower performance group), led to significant differences in total output across the performance groups. Note that the upper performance group incurred significantly lower total variable costs, and consequently the difference in gross margin between the upper and lower performance groups was £290/ha and statistically significantly different. With the exception of labour and land, the upper performance group incurred higher fixed costs than the lower performance group, resulting in total costs for the upper performance group being approximately £70/ha greater than for the lower performance group. The resultant difference in net margin between these two groups was £180/ha, albeit that on average these data indicate considerable losses for the majority of winter barley enterprises.

The results for 2005 winter barley enterprises (Table 3.8) follow a similar pattern to those for 2004. The upper performance group is typified by achieving significantly higher yields than the lower performance group, incurring lower total variable costs but with higher total fixed costs. Total costs for 2005 are significantly greater in the upper performance group. Significant differences are once again observed in net margins, but with considerable negative net margin returns almost exclusively across all enterprises in the sample.

Table 3.7: Winter Barley Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	20.40	21.11	18.65	21.06	17.95	15.36	
Yield (t/ha)	6.57	1.19	7.47	0.94	5.61	1.15	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	227	32	233	11	211	58	L<A,U
TOgrain	440	87	520	70	353	68	L<A,U;U>A
TotOut	716	112	844	70	589	81	L<A,U;U>A
TOexcAAP	489	105	611	72	378	72	L<A,U;U>A
Seeds	39	14	37	14	43	21	L>A,U
Fert	79	40	80	23	84	74	
Sprays	90	28	79	25	94	33	U<L,A
OtherVC	14	23	13	13	22	39	L>A,U
Fuel	1	3	1	3	1	4	
TVC	223	58	210	43	245	89	L>A,U;U<A
GM	494	115	634	66	344	82	L<A,U;U>A
Lab	195	143	186	106	172	147	
Contract	46	80	66	111	49	64	U>A
TMach	183	89	210	79	175	101	U>L,A
TOFC	59	27	63	26	54	31	U>L
TFCexcLand	483	187	525	152	449	201	U>L,A
Land	170	157	168	49	169	93	
TFC	654	236	693	162	617	212	U>L
NFI	-160	247	-59	163	-273	213	L<A,U;U>A
FSLab	132	149	168	166	136	126	U>A
TC	1009	282	1070	227	998	269	U>L,A
NM	-292	278	-227	223	-409	252	L<A,U;U>A
No. in sample	383		96		96		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.8: Winter Barley Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	19.14	17.91	17.57	14.75	17.65	15.45	
Yield (t/ha)	6.40	1.22	7.39	0.99	5.34	1.11	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	0	0	0	0	0	0	
TOgrain	436	89	528	71	351	72	L<A,U;U>A
TotOut	489	101	618	66	386	74	L<A,U;U>A
TOexcAAP	489	101	618	66	386	74	L<A,U;U>A
Seeds	38	12	37	11	41	15	L>A,U
Fert	80	25	81	27	87	26	L>A,U
Sprays	88	35	79	24	93	50	U<L,A
OtherVC	13	20	10	13	18	23	U<L
Fuel	1	4	3	8	1	4	U>A
TVC	221	56	210	46	239	73	L>A,U
GM	269	98	408	46	147	51	L<A,U;U>A
Lab	207	164	227	149	171	146	U>L
Contract	48	74	43	55	54	72	
TMach	148	72	181	91	131	68	U>L,A
TOFC	70	39	74	37	70	41	
TFCexcLand	473	206	525	207	426	188	U>L,A
Land	155	58	158	45	153	56	
TFC	628	214	683	219	579	196	U>L,A
NFI	-359	219	-275	212	-432	206	L<A,U;U>A
FSLab	171	180	203	186	171	165	
TC	1019	295	1096	309	990	311	U>L,A
NM	-530	276	-478	294	-604	281	L<A,U
No. in sample	338		85		85		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.3 Winter Wheat

The largest sample of enterprise data in the England FBS in both 2004 and 2005 is for winter wheat as shown in Table 3.9. No significant differences in yield are recorded between 2004 and 2005, but the removal of AAP for cereals has had a significant impact on total output including AAP, whilst total output excluding AAP was almost identical between the two years. Some differences in variable costs were identified, with fertiliser costs greater in 2005, but with fuel for crop drying in 2005 being lower than for 2004; the latter being generally regarded as a wetter harvest than 2005. With the exception of labour and contract costs, all other fixed cost categories were greater in 2005 than 2004, leading to overall total costs being significantly greater in 2005. The £45/ha increase in total costs for 2005, combined with the loss of AAP led to a significant and substantial reduction in net margin between the two years.

Table 3.9: Winter Wheat Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	69.86	94.27	64.64	83.12	1.07	
Yield (t/ha)	8.18	1.30	8.23	1.34	-0.64	
	£/ha	£/ha	£/ha	£/ha		
AAP	231	20	0	0	291.55	***
TOgrain	569	107	569	96	0.16	
TotOut	824	110	596	99	39.87	***
TOexcAAP	593	109	596	99	-0.48	
Seeds	39	12	40	12	-0.78	
Fert	89	26	94	26	-3.27	**
Sprays	121	30	121	32	-0.36	
OtherVC	16	23	16	23	0.34	
Fuel	2	5	1	5	2.84	**
TVC	267	50	272	54	-1.63	
GM	557	107	324	107	39.97	***
Lab	68	49	71	54	-0.86	
Contract	40	75	42	73	-0.31	
TMach	158	67	193	89	-8.30	***
TOFC	69	35	74	53	-2.03	*
TFCexcLand	336	111	380	137	-6.52	***
Land	175	57	160	82	4.07	***
TFC	511	128	540	166	-3.54	***
NFI	46	143	-215	193	28.26	***
FSLab	37	52	48	60	-3.52	***
TC	815	150	859	193	-4.66	***
NM	9	160	-263	208	26.94	***
<i>No. in sample</i>	<i>685</i>		<i>657</i>			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

Table 3.10 presents the performance group data for winter wheat in 2004. The upper performance group is characterised as growing a significantly larger crop area, achieving significantly higher yields (and a price premium of £9/t over the lower performance group), whilst incurring lower total variable costs, but greater total fixed costs. In relation to fixed costs, only contract and land costs are not significantly different between the upper and lower performance groups. The value of farmer and spouse labour is recorded as being significantly lower for the upper performance group, however total costs are significantly greater for this group. The substantial difference in total output ensures that the upper

performance group achieved significantly greater gross and net margins than the average and lower performance groups.

The enterprise data for winter wheat by performance group for 2005 are detailed in Table 3.11. A number of the key factors identified for 2004 remain in 2005; the upper performance group achieved significantly higher yields (associated with higher prices by £5/t), higher total output and lower total variable costs. Whilst in 2004 the upper performance group grew significantly larger areas and incurred significantly greater total fixed costs, these differences are not found in 2005. Of the fixed costs in 2005, only machinery costs are identified as significantly different between the performance groups (higher in the upper performance group). Gross and net margins remain significantly greater in the upper performance group, albeit that the removal of AAP has significantly reduced overall performance in comparison to 2004 as noted from Table 3.9.

Table 3.10: Winter Wheat Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	69.86	94.27	79.19	91.72	45.43	51.80	L<A,U
Yield (t/ha)	8.18	1.30	9.16	1.12	6.82	1.10	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	231	20	233	15	227	29	U>L
TOgrain	569	107	675	77	441	78	L<A,U;U>A
TotOut	824	110	942	76	688	79	L<A,U;U>A
TOexcAAP	593	109	709	79	461	76	L<A,U;U>A
Seeds	39	12	38	10	43	15	L>A,U
Fert	89	26	90	24	94	29	L>A
Sprays	121	30	114	28	121	33	U<L,A
OtherVC	16	23	15	18	20	28	
Fuel	2	5	2	3	2	5	
TVC	267	50	258	47	279	59	L>A,U;U<A
GM	557	107	683	72	409	60	L<A,U;U>A
Lab	68	49	82	45	51	43	L<A,U;U>A
Contract	40	75	39	80	37	60	
TMach	158	67	186	65	140	63	L<A,U;U>A
TOFC	69	35	78	37	70	36	U>L,A
TFCexcLand	336	111	385	120	298	104	L<A,U;U>A
Land	175	57	182	60	174	60	
TFC	511	128	567	139	472	130	L<A,U;U>A
NFI	46	143	116	148	-63	138	L<A,U;U>A
FSLab	37	52	32	42	52	61	L>A,U
TC	815	150	857	155	803	169	U>L,A
NM	9	160	84	161	-115	158	L<A,U;U>A
No. in sample	685		171		171		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.11: Winter Wheat Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	64.64	83.12	62.86	96.29	55.40	67.76	
Yield (t/ha)	8.23	1.34	9.20	1.14	6.92	1.30	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	0	0	0	0	0	0	
TOgrain	569	96	662	70	464	79	L<A,U;U>A
TotOut	596	99	705	68	483	76	L<A,U;U>A
TOexcAAP	596	99	705	68	483	76	L<A,U;U>A
Seeds	40	12	38	13	41	12	U<L
Fert	94	26	86	28	103	28	L>A,U;U<A
Sprays	121	32	114	36	129	37	L>A,U;U<A
OtherVC	16	23	12	16	23	31	L>A,U
Fuel	1	5	2	6	1	3	
TVC	272	54	252	53	297	63	L>A,U;U<A
GM	324	107	453	74	186	64	L<A,U;U>A
Lab	71	54	78	48	73	56	
Contract	42	73	36	66	46	69	
TMach	193	89	211	92	188	101	U>L,A
TOFC	74	53	75	41	83	79	
TFCexcLand	380	137	399	137	389	167	
Land	160	82	165	54	157	126	
TFC	540	166	564	155	546	223	
NFI	-215	193	-111	153	-360	238	L<A,U;U>A
FSLab	48	60	47	61	47	52	
TC	859	193	864	194	890	244	
NM	-263	208	-158	181	-407	244	L<A,U;U>A
No. in sample	657		164		164		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.4 Beans for Stockfeed

Tables 3.12 to 3.14 relate to a crop which is often characterised as having variable yields. However, the reduced yield led to a significantly lower output excluding AAP between the two years of interest, with similar prices achieved in both years. The reduction in production-linked subsidies for beans has produced a significant difference in the gross margin recorded between the two years, as expected. A significantly lower total machinery cost was also recorded in 2005; whilst this may, in part, be due to the lower total output achieved, resulting in a lower apportionment of this fixed cost to this enterprise, the similar labour costs recorded between these two years suggests that the difference in machinery costs is due to a change in machinery usage for this crop, rather than as a result of the apportionment calculation. Significantly lower land costs, combined with lower machinery costs have led to a significantly lower total cost for 2005 (*cf* 2004). The resulting net margin is significantly different as expected, albeit that the reduced total cost has minimised the fall in output from reduced AAP payments and hence lower crop output in 2005.

Table 3.12: Beans Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	22.26	24.89	21.33	20.52	0.41	
Yield (t/ha)	3.81	0.95	3.55	1.13	2.49	*
	£/ha	£/ha	£/ha	£/ha		
AAP	266	28	22	17	105.30	***
TOgrain	342	98	311	119	2.96	**
TotOut	609	99	333	118	26.07	***
TOexcAAP	343	99	311	119	3.03	**
Seeds	43	23	42	21	0.78	
Fert	19	21	19	24	-0.28	
Sprays	71	37	62	37	2.58	**
OtherVC	11	17	12	22	-0.72	
Fuel	0	1	0	2	-0.60	
TVC	144	55	135	58	1.64	
GM	465	104	198	119	24.47	***
Lab	99	78	93	69	0.84	
Contract	30	53	27	45	0.82	
TMach	141	52	113	55	5.39	***
TOFC	55	33	60	42	-1.28	
TFCexcLand	326	111	292	111	3.08	**
Land	166	45	151	57	3.12	**
TFC	492	125	443	133	3.89	***
NFI	-27	138	-245	146	15.73	***
FSLab	59	86	57	66	0.26	
TC	695	159	635	163	3.83	***
NM	-86	159	-302	161	13.83	***
No. in sample	215		204			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Table 3.13 provides the results of the 2004 bean crop by performance groups. The upper performance group is characterised by significantly higher yields and hence output (the upper group achieved a higher price of approximately £10/t over and above the average price of the lower group), combined with lower variable costs leading to significant and substantial differences in gross margins. With respect to fixed costs, the upper performance group incurred significantly higher machinery costs, and the lower performance group incurred significantly lower land costs, which may reflect land quality and hence impact upon productive capacity. The significantly higher fixed costs of the upper performance group, combined with the lower variable costs, resulted in no significant difference in total costs. Whilst all groups returned a negative net margin, the largest proportion of the significant difference in net margin achieved between the upper and lower performance groups resulted from difference in total output achieved.

The results for bean production in 2005 by performance groups are provided in Table 3.14. The differences between groups identified for 2004 largely remain in 2005, with higher yields and lower variable costs characterising the significant difference in gross margin. In respect to fixed costs, in 2005 labour costs are significantly higher in the upper performance group, and total costs in the upper performance group are greater than for all enterprises and the lower performance group. However, significant differences remain at net margin level, although the £100/ha higher fixed costs of the upper performance group has eroded approximately one-third of the higher gross margin this group achieved over and above that of the lower performance group.

Table 3.13: Beans Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	22.26	24.89	26.63	26.35	18.41	19.35	
Yield (t/ha)	3.81	0.95	4.65	0.89	2.92	0.87	L<A,U; U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	266	28	267	17	259	37	
TOgrain	342	98	444	86	245	75	L<A,U; U>A
TotOut	609	99	716	86	504	84	L<A,U; U>A
TOexcAAP	343	99	449	88	245	75	L<A,U; U>A
Seeds	43	23	41	24	50	23	L>A,U
Fert	19	21	11	14	29	27	L>A,U; U<A
Sprays	71	37	61	39	84	41	L>A,U
OtherVC	11	17	9	12	17	20	L>A,U
Fuel	0	1	0	1	0	2	
TVC	144	55	123	59	181	63	L>A,U; U<A
GM	465	104	593	61	323	67	L<A,U; U>A
Lab	99	78	110	86	88	60	
Contract	30	53	35	60	25	44	
TMach	141	52	160	56	131	44	U>A,L
TOFC	55	33	56	25	52	26	
TFCexcLand	326	111	360	107	297	103	U>A,L
Land	166	45	175	40	151	43	L<A,U
TFC	492	125	535	113	448	116	L<A,U; U>A
NFI	-27	138	58	118	-125	120	L<A,U; U>A
FSLab	59	86	63	70	59	53	
TC	695	159	721	146	688	154	
NM	-86	159	-5	137	-184	128	L<A,U; U>A
No. in sample	215		54		54		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.14: Beans Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	21.33	20.52	24.02	22.16	19.27	17.49	
Yield (t/ha)	3.55	1.13	4.57	0.94	2.49	0.97	L<A,U; U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	22	17	22	17	20	18	
TOgrain	311	119	455	93	199	79	L<A,U; U>A
TotOut	333	118	477	86	219	83	L<A,U; U>A
TOexcAAP	311	119	455	93	199	79	L<A,U; U>A
Seeds	42	21	44	25	47	19	
Fert	19	24	11	15	30	30	L>A,U; U<A
Sprays	62	37	59	51	69	33	
OtherVC	12	22	13	16	14	28	
Fuel	0	2	1	3	0	2	
TVC	135	58	128	59	161	58	L>A,U
GM	198	119	349	93	58	60	L<A,U; U>A
Lab	93	69	138	90	82	57	U>A,L
Contract	27	45	28	46	24	41	
TMach	113	55	147	70	96	50	U>A,L
TOFC	60	42	49	25	61	52	
TFCexcLand	292	111	362	131	262	86	U>A,L
Land	151	57	163	47	140	78	
TFC	443	133	526	148	403	121	U>A,L
NFI	-245	146	-177	160	-345	133	L<A,U; U>A
FSLab	57	66	60	62	51	54	
TC	635	163	714	168	615	142	U>A,L
NM	-302	161	-237	181	-396	139	L<A,U; U>A
No. in sample	204		51		51		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.5 Peas for Combining

Table 3.15 presents the results of the output, costs and returns to peas for combining production enterprises in 2004 and 2005. Following the change in production-linked subsidies, a significant reduction in AAP payments is recorded for 2005, which also accounts for the significant reduction in total output (including AAP) and gross margin. Excluding AAP payments, total output between these two years is not significantly different. A significantly higher seed cost is recorded for 2005, whilst significantly lower machinery costs are incurred in 2005 (*cf* 2004). Additionally land costs are significantly lower in 2005. As no significant difference in output excluding AAP, nor in total costs, are observed, the significant and substantial reduction in net margin in 2005 is almost completely accounted for by the reduced AAP payment in 2005 resulting from the Common Agricultural Policy change.

Table 3.15: Peas Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	25.11	24.08	25.48	28.21	-0.08	
Yield (t/ha)	4.03	1.07	3.81	1.01	1.27	
	£/ha	£/ha	£/ha	£/ha		
AAP	269	11	24	17	102.68	***
TOgrain	494	184	449	149	1.64	
TotOut	764	185	475	151	10.24	***
TOexcAAP	495	183	451	151	1.56	
Seeds	76	27	91	45	-2.34	*
Fert	17	29	12	18	1.28	
Sprays	99	38	90	40	1.34	
OtherVC	10	16	9	12	0.35	
Fuel	0	1	0	1	0.41	
TVC	202	59	202	76	0.01	
GM	562	176	273	144	10.75	***
Lab	168	113	146	143	1.02	
Contract	14	33	27	59	-1.66	
TMach	166	70	137	62	2.62	**
TOFC	64	31	72	48	-1.23	
TFCexcLand	411	173	382	196	0.93	
Land	199	56	171	58	2.94	**
TFC	611	190	554	211	1.69	
NFI	-49	177	-281	191	7.47	**
FSLab	52	75	48	61	0.34	
TC	865	204	804	222	1.70	
NM	-101	187	-329	193	7.12	***
<i>No. in sample</i>	67		75			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

The results for peas for combining for 2004 and 2005 by performance groups are presented in Tables 3.16 and 3.17 respectively. Comparing the upper and lower performance groups for 2004, the upper performance group is characterised by a significantly larger average enterprise crop area, greater yields, greater output accompanied by higher labour costs resulting in a substantially greater net margin (although still negative). The upper performance group not only achieved yields that were 80% greater than the lower performance group, but also achieved average prices of £147/t in comparison to the £103/t for the lower performance group. Note that in relation to total cost, the upper performance group incurred significantly greater costs than all farms in 2004, but the large

variation in total cost incurred by the lower performance group led to no significant difference in total cost between the upper and lower performance group being identified.

The results by performance groups for 2005 (Table 3.17) follow a similar pattern to those noted for 2004. Notable differences include a significantly lower total variable cost for the upper performance group in comparison to the lower performance group in 2005, and that whilst a large numerical difference in net margin is reported between these two groups in 2005, the substantial variation in net margin performance within each group leads to no significant difference in net margin being detected.

Table 3.16: Peas Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	25.11	24.08	39.45	39.88	15.74	8.11	U>L
Yield (t/ha)	4.03	1.07	4.53	0.83	2.50	0.90	L<A,U
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	269	11	271	7	263	22	
TOgrain	494	184	666	151	258	89	L<A,U;U>A
TotOut	764	185	937	152	522	84	L<A,U;U>A
TOexcAAP	495	183	666	151	258	90	L<A,U;U>A
Seeds	76	27	84	28	67	20	
Fert	17	29	10	15	43	50	L>A,U
Sprays	99	38	101	45	85	39	
OtherVC	10	16	5	7	21	30	L>A,U
Fuel	0	1	0	0	0	0	
TVC	202	59	199	63	216	76	
GM	562	176	738	113	306	95	L<A,U;U>A
Lab	168	113	237	131	125	100	U>A,L
Contract	14	33	21	48	25	36	
TMach	166	70	196	80	142	91	
TOFC	64	31	69	32	73	50	
TFCexcLand	411	173	524	186	365	199	U>A,L
Land	199	56	222	55	185	51	
TFC	611	190	745	185	550	237	U>A,L
NFI	-49	177	-7	158	-245	278	L<A,U
FSLab	52	75	31	89	87	78	
TC	865	204	975	172	853	357	U>A
NM	-101	187	-38	116	-331	335	L<A,U
No. in sample	67		17		17		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

Table 3.17: Peas Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	25.48	28.21	28.20	38.39	19.26	14.66	
Yield (t/ha)	3.81	1.01	4.61	0.71	2.49	0.67	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	24	17	22	18	27	15	
TOgrain	449	149	600	97	256	74	L<A,U;U>A
TotOut	475	151	628	103	284	71	L<A,U;U>A
TOexcAAP	451	151	606	100	257	73	L<A,U;U>A
Seeds	91	45	86	57	97	36	
Fert	12	18	5	11	20	20	U<L
Sprays	90	40	87	31	98	33	
OtherVC	9	12	5	6	9	15	
Fuel	0	1	1	3	0	0	
TVC	202	76	183	72	224	47	U<L
GM	273	144	445	80	59	61	L<A,U;U>A
Lab	146	143	214	220	83	58	U>L
Contract	27	59	32	53	12	28	
TMach	137	62	138	50	109	60	
TOFC	72	48	98	79	66	29	
TFCexcLand	382	196	483	282	270	129	L<A,U
Land	171	58	183	48	150	49	U>L
TFC	554	211	666	320	420	151	L<A,U
NFI	-281	191	-221	291	-361	155	
FSLab	48	61	50	72	46	72	
TC	804	222	899	290	690	220	L<A
NM	-329	193	-271	279	-407	206	
No. in sample	75		19		19		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.6 Spring Oilseed Rape

Oilseed rape represents a major arable enterprise on combinable cropping farms, however, the majority of this is grown as a winter crop. Consequently, the number of enterprise returns examining spring OSR for 2004 and 2005 are 50 and 21 respectively as noted in Table 3.18. These numbers of observations therefore allow analysis by performance groups to be undertaken for 2004 (Table 3.19), but not for the 2005 harvest year due to the small number of observations for this enterprise in 2005. Examining Table 3.18, the removal of AAP in 2005 accounts for the significant difference in performance between the two years with respect to total output, gross margin, net farm income for the enterprise and enterprise net margin. Other notable costs differences are higher fertiliser costs in 2005 (largely reflecting changes to input prices) and higher contract costs for 2005. The latter result is potentially a function of the smaller sample in 2005 being more reliant upon contract services than the larger sample for 2004.

Table 3.18: Spring OSR Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	25.09	22.10	21.72	17.25	0.62	
Yield (t/ha)	1.99	0.75	2.16	1.02	-0.81	
	£/ha	£/ha	£/ha	£/ha		
AAP	217	53	0	0	18.60	***
TOgrain	281	110	309	140	-0.92	
TotOut	498	135	309	141	5.32	***
TOexcAAP	281	109	309	141	-0.90	
Seeds	46	20	38	8	1.78	
Fert	67	30	96	27	-3.88	***
Sprays	67	35	68	29	-0.14	
OtherVC	18	23	16	17	0.23	
Fuel	0	2	1	2	-0.41	
TVC	198	64	219	47	-1.37	
GM	300	137	90	125	6.04	***
Lab	39	28	43	46	-0.42	
Contract	21	45	71	103	-2.82	***
TMach	117	48	104	70	0.89	
TOFC	46	31	52	31	-0.74	
TFCexcLand	223	100	269	177	-1.39	
Land	159	54	138	60	1.45	
TFC	382	133	407	212	-0.60	
NFI	-82	147	-317	133	6.32	***
FSLab	26	32	37	35	-1.34	
TC	606	164	664	228	-1.20	
NM	-108	148	-354	115	6.82	***
No. in sample	50		21			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

The results for spring OSR by performance groups for 2004 are presented in Table 3.19. The upper performance group achieved significantly greater yields, achieving more than twice the average yield of the lower performance group. Accompanying this increased yield, the upper performance group achieved output prices of approximately £152/t in comparison to the £131/t for the lower performance group. It is instructive to note that the lower performance group accrued significantly lower AAP than the average and the upper performance groups. Variable cost differences are restricted to only significantly lower seed costs for the upper performance group. The upper performance group achieved a significantly greater gross margin, but also incurred significantly greater land costs, leading, in part, to the significantly greater total fixed costs over the lower performance group. The combination of higher output and greater total fixed costs led to significant differences at enterprise net margin level.

Table 3.19: Spring OSR Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	25.09	22.10	21.22	16.80	20.23	14.89	
Yield (t/ha)	1.99	0.75	2.53	0.61	1.20	0.79	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	217	53	233	24	176	93	L<A,U
TOgrain	281	110	383	72	158	108	L<A,U;U>A
TotOut	498	135	616	58	336	153	L<A,U;U>A
TOexcAAP	281	109	383	71	160	108	L<A,U;U>A
Seeds	46	20	46	23	59	24	L>A
Fert	67	30	70	32	65	35	
Sprays	67	35	55	30	78	35	
OtherVC	18	23	18	14	23	31	
Fuel	0	2	0	0	0	0	
TVC	198	64	188	61	225	67	
GM	300	137	428	44	111	138	L<A,U;U>A
Lab	39	28	47	24	39	40	
Contract	21	45	39	65	22	38	
TMach	117	48	130	39	106	65	
TOFC	46	31	62	38	37	36	
TFCexcLand	223	100	278	114	204	136	
Land	159	54	181	63	134	53	U>L
TFC	382	133	459	159	338	169	U>L
NFI	-82	147	-32	174	-227	143	L<A,U
FSLab	26	32	25	46	23	26	
TC	606	164	672	173	586	216	
NM	-108	148	-56	167	-250	154	L<A,U
No. in sample	50		17		17		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.7 Winter OSR

The results for winter OSR for 2004 and 2005 are presented in Table 3.20. Average yields in 2005 were significantly greater than for 2004. As a consequence total output from grain was significantly higher between these two years, as was total output which includes the significantly larger AAP for 2004. Whilst there were no differences identified between 2004 and 2005 for variable costs, the difference in output (inclusive of difference in AAP) led to a significantly lower gross margin in 2005 in comparison to 2004. Examining the fixed cost data a number of observations require comment. Both labour and machinery are significantly greater in 2005 in comparison to 2004 and these significant and substantial differences are unlikely to represent a real-terms change in the fixed costs attributable to these enterprises. Arguably these differences indicate that the methodological coefficients underlying the fixed cost apportionment for winter OSR are responsible, in part, for the significant cost differences observed. By contrast, land costs in 2005 are significantly lower than for 2004, but overall total fixed costs and total costs are significantly greater in 2005. The combination of lower output and higher total costs in 2005 leads to a significant and substantial difference in net margin between 2004 and 2005; the latter suggesting that the vast majority of winter OSR enterprises recorded negative net margins.

Table 3.20: Winter OSR Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	39.93	41.78	43.34	48.50	-0.92	
Yield (t/ha)	3.04	0.82	3.40	0.68	-5.81	***
	£/ha	£/ha	£/ha	£/ha		
AAP	222	43	4	9	88.48	***
TOgrain	435	134	493	106	-5.84	***
TotOut	658	140	498	107	15.82	***
TOexcAAP	436	135	494	107	-5.86	***
Seeds	33	16	33	17	-0.02	
Fert	100	28	101	26	-0.43	
Sprays	103	33	104	33	-0.15	
OtherVC	14	17	15	17	-1.09	
Fuel	0	2	1	8	-0.89	
TVC	250	53	254	49	-0.81	
GM	408	131	244	110	16.59	***
Lab	58	41	90	67	-6.83	***
Contract	40	73	38	64	0.36	
TMach	78	48	181	77	-19.47	***
TOFC	55	29	66	39	-3.58	***
TFCexcLand	306	105	375	141	-6.75	***
Land	161	46	150	43	3.11	**
TFC	467	112	525	152	-5.23	***
NFI	-59	128	-281	153	19.12	***
FSLab	31	39	52	57	-5.29	***
TC	748	146	831	177	-6.18	***
NM	-90	136	-333	165	19.54	***
No. in sample	284		313			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Tables 3.21 and 3.22 respectively present results for winter OSR by performance groups for 2004 and 2005. For 2004, Table 3.21 shows that the upper performance group achieved significantly higher yields, which accompanied by higher prices (£152/t *cf* £136/t for the lower performance group) led to significant differences in output. Significant differences were also found for AAP payments between the lower performance group and the average and upper performance groups. With respect to variable costs, the upper performance group incurred significantly lower seed and other variable costs, although total variable costs were not significantly different between the groups. Nonetheless, gross margin data identified significant differences across the performance groups. The upper performance group incurred higher total fixed costs, leading to a significant difference in total costs. However, the upper performance group achieved a significantly greater net margin approaching £200/ha more than the lower performance group.

The output, costs and margins across performance groups for 2005 (Table 3.22) follow a similar pattern to those noted for 2004, albeit that the reduction in AAP between the two years has reduced the overall net margins as identified in Table 3.32. For 2005, the upper performance group achieved significantly higher yields (with higher output prices) returning significantly greater total output. In contrast to 2004, the 2005 data shows that fertiliser and spray costs were significantly lower for the upper performance group, leading to significantly lower total variable costs. Fixed cost data for 2005 demonstrates that the upper performance group incurred higher fixed costs for all factors examined, with the exception of contract cost where no significant difference was observed. The significant difference in net margin between the upper and lower performance groups was approximately £110/ha.

Table 3.21: Winter OSR Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	39.93	41.78	38.67	44.12	38.49	47.52	
Yield (t/ha)	3.04	0.82	3.87	0.39	2.05	0.63	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	222	43	231	24	204	70	L<A,U
TOgrain	435	134	588	71	279	92	L<A,U;U>A
TotOut	658	140	820	64	483	87	L<A,U;U>A
TOexcAAP	436	135	589	71	279	92	L<A,U;U>A
Seeds	33	16	30	12	36	23	U<L
Fert	100	28	102	27	95	28	
Sprays	103	33	108	35	98	36	
OtherVC	14	17	11	11	18	25	U<L
Fuel	0	2	1	2	1	2	
TVC	250	53	252	48	248	61	
GM	408	131	568	48	235	77	L<A,U;U>A
Lab	58	41	73	46	42	31	L<A,U;U>A
Contract	40	73	50	94	46	67	
TMach	78	48	96	44	60	42	L<A,U;U>A
TOFC	55	29	62	24	43	29	L<A,U
TFCexcLand	306	105	370	94	250	103	L<A,U;U>A
Land	161	46	166	61	158	37	
TFC	467	112	537	118	408	109	L<A,U;U>A
NFI	-59	128	31	121	-173	112	L<A,U;U>A
FSLab	31	39	33	40	25	36	
TC	748	146	822	133	681	156	L<A,U;U>A
NM	-90	136	-2	133	-198	124	L<A,U;U>A
No. in sample	284		71		71		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.22: Winter OSR Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	43.34	48.50	42.11	45.76	37.00	38.65	
Yield (t/ha)	3.40	0.68	3.99	0.52	2.55	0.54	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
AAP	4	9	2	9	1	4	L<A
TOgrain	493	106	606	63	351	73	L<A,U;U>A
TotOut	498	107	610	64	353	74	L<A,U;U>A
TOexcAAP	494	107	608	63	352	73	L<A,U;U>A
Seeds	33	17	34	14	34	21	
Fert	101	26	91	24	104	29	U<L,A
Sprays	104	33	97	34	107	40	
OtherVC	15	17	10	12	19	21	U<L,A
Fuel	1	8	1	2	2	17	
TVC	254	49	232	40	266	63	U<L,A
GM	244	110	378	53	87	66	L<A,U;U>A
Lab	90	67	115	84	61	44	L<A,U;U>A
Contract	38	64	37	68	42	68	
TMach	181	77	215	92	142	68	L<A,U;U>A
TOFC	66	39	76	51	55	25	L<A,U
TFCexcLand	375	141	443	191	300	85	L<A,U;U>A
„Land	150	43	159	40	143	42	U>L
TFC	525	152	602	192	443	96	L<A,U;U>A
NFI	-281	153	-224	192	-356	114	L<A,U;U>A
FSLab	52	57	63	66	41	49	U>L
TC	831	177	897	210	750	139	L<A,U;U>A
NM	-333	165	-287	210	-397	123	L<A,U;U>A
No. in sample	313		78		78		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.8 Ware Potatoes

Table 3.23 presents the results for ware potato enterprises in 2004 and 2005. No difference in yield is identified between the two years presented, however total output is significantly different between these two years resulting from the average price in 2004 of £98/t, contrasting with the average price of £118/t in 2005. This price differential between the two years is the main driver behind the significantly greater gross margin recorded in 2005 (note the almost identical total variable costs over the two years). Some significant differences in fixed costs are observed with higher labour costs in 2005 set against lower total other fixed costs and land costs in the same year. Net margin performance is significantly different, with the price differential between the two years being the main explanatory factor of the £670/ha net margin increase in 2005 over 2004.

Table 3.23: Ware Potatoes Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	25.19	37.17	19.48	29.35	1.15	
Yield (t/ha)	41.21	9.56	40.52	8.30	0.52	
	£/ha	£/ha	£/ha	£/ha		
TotOut	4039	1364	4794	1652	-3.35	***
Seeds	491	146	490	182	0.03	
Fert	195	80	212	76	-1.41	
Sprays	435	232	392	215	1.30	
OtherVC	311	320	343	338	-0.65	
Fuel	0	0	0	1	-1.20	
TVC	1432	464	1437	509	-0.06	
GM	2606	1275	3358	1526	-3.59	***
Lab	397	246	524	498	-2.16	*
Contract	184	289	231	445	-0.83	
TMach	692	273	754	304	-1.44	
TOFC	292	163	136	97	7.85	***
TFCexclLand	1565	573	1643	717	-0.81	
Land	319	153	222	85	5.24	***
TFC	1884	637	1866	764	0.17	
NFI	723	984	1492	1241	-4.62	***
FSLab	88	209	183	386	-2.06	*
TC	3404	929	3485	1083	-0.54	
NM	635	1003	1309	1243	-4.01	***
No. in sample	90		91			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Table 3.24 presents ware potato results for 2004 across performance groups. The upper performance group achieved significantly greater yields than the lower performance group and additionally accrued higher prices (£125/t upper group; £72/t lower group). The combination of higher yields and higher prices led to significant differences in total output, which when combined with total variable costs that were not significantly different between the two groups, led to the upper performance group achieving a gross margin nearly £3000/ha greater than the lower performance group. Part of this increased gross margin was eroded by significantly greater fixed costs in the upper performance group, with only contract costs not being significantly different between the upper and lower performance groups. Total costs were consequently significantly greater for the upper performance group (by £760/ha), but the difference in net margin between the upper and lower groups exceeded £2000/ha.

The yield and price differentials observed between performance groups in 2004 remains present in the 2005 data (Table 3.25). In 2005 the upper performance group achieved prices of £151/t in contrast to the £83/t for the lower performance group. Total variable costs in 2005 were once again not significantly different between the performance groups, whilst the significantly greater fixed, and hence total, costs of the upper performance group remain in 2005. The difference in net margin between the groups was also significantly different, and in 2005 the difference in net margin between the upper and lower performance groups exceeded £2500/ha.

Table 3.24: Ware Potatoes Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	25.19	37.17	39.32	60.99	16.06	25.25	
Yield (t/ha)	41.21	9.56	42.63	7.65	33.50	11.83	L<A,U
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	4039	1364	5343	1039	2427	971	L<A,U;U>A
Seeds	491	146	523	169	477	156	
Fert	195	80	174	62	205	114	
Sprays	435	232	416	238	361	194	
OtherVC	311	320	299	248	408	496	
Fuel	0	0	0	0	0	0	
TVC	1432	464	1412	440	1450	560	
GM	2606	1275	3931	964	977	657	L<A,U;U>A
Lab	397	246	474	243	236	219	L<A,U
Contract	184	289	191	232	280	447	
TMach	692	273	871	264	432	176	L<A,U;U>A
TOFC	292	163	389	224	212	89	L<A,U;U>A
TFCexcLand	1565	573	1926	615	1160	556	L<A,U;U>A
Land	319	153	352	134	264	128	U>L
TFC	1884	637	2277	699	1424	596	L<A,U;U>A
NFI	723	984	1653	822	-447	541	L<A,U;U>A
FSLab	88	209	66	270	122	234	
TC	3404	929	3756	1022	2996	1000	U>L
NM	635	1003	1587	851	-569	508	L<A,U;U>A
No. in sample	90		23		23		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.25: Ware Potatoes Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	19.48	29.35	25.82	44.57	11.36	13.33	
Yield (t/ha)	40.52	8.30	42.86	7.00	31.92	9.06	L<A,U
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	4794	1652	6504	982	2677	573	L<A,U;U>A
Seeds	490	182	484	179	515	224	
Fert	212	76	205	58	238	88	
Sprays	392	215	478	254	285	110	L<A,U
OtherVC	343	338	275	163	292	240	
Fuel	0	1	0	1	0	0	
TVC	1437	509	1443	365	1330	368	
GM	3358	1526	5061	944	1347	464	L<A,U;U>A
Lab	524	498	721	553	257	215	L<A,U
Contract	231	445	319	556	104	175	
TMach	754	304	922	289	651	315	U>L,A
TOFC	136	97	128	76	115	54	
TFCexclLand	1643	717	2091	719	1127	439	L<A,U;U>A
Land	222	85	273	89	184	37	L<A,U;U>A
TFC	1866	764	2364	755	1311	444	L<A,U;U>A
NFI	1492	1241	2698	1050	36	488	L<A,U;U>A
FSLab	183	386	225	589	133	123	
TC	3485	1083	4031	1097	2774	650	L<A,U;U>A
NM	1309	1243	2473	1115	-96	518	L<A,U;U>A
No. in sample	91		23		23		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.9 Sugar Beet

Table 3.26 presents the results for sugar beet enterprises. The overall performance as indicated by total output, total costs and net margin between 2004 and 2005 is very similar, with no significant differences observed in these headline performance indicators. However, some significant differences in costs were identified, with significantly lower costs recorded for machinery, total other fixed costs and land. Contrasting this, farmer and spouse labour represented a significantly greater cost in 2005 in comparison to 2004.

Table 3.26: Sugar Beet Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	26.38	26.35	24.62	22.93	0.65	
Yield (t/ha)	58.68	10.39	58.07	10.84	0.53	
	£/ha	£/ha	£/ha	£/ha		
TotOut	1846	293	1792	297	1.71	
Seeds	140	27	147	40	-1.86	
Fert	106	47	110	47	-0.84	
Sprays	130	42	127	45	0.58	
OtherVC	246	151	232	143	0.89	
TVC	621	170	616	158	0.32	
GM	1225	312	1176	291	1.49	
Lab	320	309	354	371	-0.92	
Contract	162	148	161	155	0.05	
TMach	512	194	459	167	2.70	**
TOFC	132	54	87	79	6.12	***
TFCexcLand	1126	416	1061	465	1.35	
Land	205	70	177	67	3.80	***
TFC	1331	446	1237	504	1.81	
NFI	-105	426	-61	503	-0.88	
FSLab	140	215	203	251	-2.49	*
TC	2092	490	2056	588	0.61	
NM	-245	464	-264	547	0.34	
<i>No. in sample</i>	174		165			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

Examining sugar beet results across performance groups for 2004, Table 3.27 shows that the upper performance group grows a significantly larger crop area, achieves higher yields whilst incurring lower total variable costs, but higher total fixed costs. The resulting performance of these combinations is that no significant difference in total cost is observed across the performance groups, however at net margin level significant differences are observed, with the higher output of the upper performance group accounting, in the main, for the large difference in net margin achieved between the upper and lower performance groups.

The pattern identified for 2004 is largely replicated in the performance group data for sugar beet for 2005 (Table 3.28). However, whilst 2004 witnessed significantly lower total variable costs in the upper performance group, for 2005 no significant difference in total variable cost is identified, albeit that the upper performance group achieved a £60/ha saving on average over the lower performance group, but not significantly so. The significant difference in net margin performance between the upper and lower performance groups for 2004, of in excess of £500/ha, is also observed for the 2005 results.

Table 3.27: Sugar Beet Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	26.38	26.35	38.03	34.63	19.67	26.60	U>A,L
Yield (t/ha)	58.68	10.39	65.34	7.20	49.18	9.36	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	1846	293	2119	170	1475	224	L<A,U;U>A
Seeds	140	27	142	27	127	37	L<A,U
Fert	106	47	106	46	116	65	
Sprays	130	42	121	39	139	36	U<L
OtherVC	246	151	185	153	311	209	L>A,U;U<A
TVC	621	170	553	141	692	266	L>A,U;U<A
GM	1225	312	1566	171	783	167	L<A,U;U>A
Lab	320	309	427	369	227	186	U>A,L
Contract	162	148	169	167	176	110	
TMach	512	194	570	231	447	199	L<A,U
TOFC	132	54	142	49	116	51	U>L
TFCexclLand	1126	416	1308	476	965	335	L<A,U;U>A
Land	205	70	222	66	180	65	L<A,U
TFC	1331	446	1530	513	1146	341	L<A,U;U>A
NFI	-105	426	37	446	-363	396	L<A,U;U>A
FSLab	140	215	68	135	196	288	U<A,L
TC	2092	490	2151	495	2034	565	
NM	-245	464	-31	435	-559	453	L<A,U;U>A
No. in sample	174		44		44		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.28: Sugar Beet Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	24.62	22.93	32.72	28.29	19.68	14.37	U>L
Yield (t/ha)	58.07	10.84	67.25	7.16	48.59	7.96	L<A,U;U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	1792	297	2117	222	1462	166	L<A,U;U>A
Seeds	147	40	147	23	134	30	U>L
Fert	110	47	100	37	119	61	
Sprays	127	45	114	33	136	54	U<L
OtherVC	232	143	219	191	251	94	
TVC	616	158	580	190	640	128	
GM	1176	291	1537	213	822	104	L<A,U;U>A
Lab	354	371	392	324	288	260	
Contract	161	155	209	230	134	76	
TMach	459	167	515	156	430	159	U>L
TOFC	87	79	84	46	81	41	
TFCexclLand	1061	465	1199	386	933	416	U>L
Land	177	67	200	65	166	79	U>A
TFC	1237	504	1399	428	1098	465	U>L
NFI	-61	503	137	389	-277	461	L<A,U;U>A
FSLab	203	251	151	169	253	281	
TC	2056	588	2130	472	1992	680	
NM	-264	547	-13	382	-530	596	L<A,U;U>A
No. in sample	165		41		41		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.10 Fresh Vegetables – Field Scale

The results for fresh vegetable production of field scale crops are presented in Table 3.29. Overall, 2005 is characterised by a lower total output corresponding with lower variable and fixed costs which result in a slightly higher net margin in 2005 in comparison to 2004. However, the large standard deviations that accompany the mean results for the data in this category lead to none of the variations in outputs, costs and returns being significantly different between the two years presented.

Table 3.29: Fresh Vegetables - Field Scale Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	34.45	43.92	28.23	29.97	0.90	
Yield (t/ha)	7.82	11.67	10.21	16.13	-0.96	
	£/ha	£/ha	£/ha	£/ha		
TotOut	2841	3243	2675	3676	0.27	
Seeds	316	358	247	335	1.10	
Fert	95	91	81	113	0.74	
Sprays	154	124	150	132	0.16	
OtherVC	470	1387	386	1114	0.37	
Fuel	13	36	20	46	-0.88	
TVC	1047	1724	884	1346	0.58	
GM	1794	1911	1792	2701	0.01	
Lab	543	741	483	887	0.41	
Contract	82	140	116	264	-0.93	
TMach	371	335	359	324	0.19	
TOFC	158	167	133	578	0.35	
TFCexclLand	1153	1134	1092	1478	0.26	
Land	264	195	225	265	0.96	
TFC	1418	1235	1316	1668	0.39	
NFI	376	833	476	1134	-0.56	
FSLab	77	189	128	324	-1.11	
TC	2542	2707	2328	2954	0.42	
NM	300	836	347	942	-0.30	
No. in sample	69		56			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Table 3.30 presents the data for 2004 by performance groups for field scale vegetables. Significant differences are found in relation to both outputs and inputs, with the upper performance group characterised by significantly and substantially higher outputs and costs. These substantial differences are likely to represent, to a very large extent, differences in the types of production systems and crops grown between the upper and lower performance groups; the upper performance group is typical of a very high value of output cropping system, which, when examined on a per hectare basis, clearly distinguishes the performance groups presented. Note however, that whilst the upper performance group suggests a high input – high output system, the upper performance group also achieves substantially greater yields than the lower performance group, and additionally enterprise size is higher in the upper performance group, albeit that neither of these indicators are significantly different.

The results for 2005 (Table 3.31) for field scale vegetable production follow a very similar pattern to those for 2004, but with some notable differences. The upper performance group in 2005 has an average enterprise size approximately one-half of the lower performance group, but the average yield of product for this upper performance group is approximately eight times that of the lower performance group. This is again indicative of the difference in systems present

in this enterprise definition. However, despite the apparent differences in production systems between the upper and lower performance groupings, in both 2004 and 2005, on average, the lower performance group incurred an overall loss, whilst the upper performance grouping incurred substantial net margins per hectare approximating 20% of the total value of output.

Table 3.30: Fresh Vegetables - Field Scale Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	34.45	43.92	46.69	58.98	33.00	39.78	
Yield (t/ha)	7.82	11.67	10.44	12.78	2.93	3.21	
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	2841	3243	6727	3766	527	338	L<A,U;U>A
Seeds	316	358	605	525	92	88	L<A,U;U>A
Fert	95	91	168	88	33	68	L<A,U;U>A
Sprays	154	124	204	99	72	91	L<A,U
OtherVC	470	1387	1310	2409	68	116	U>L
Fuel	13	36	4	15	1	7	
TVC	1047	1724	2291	2818	266	286	U>A,L
GM	1794	1911	4436	1506	262	168	L<A,U;U>A
Lab	543	741	1404	842	35	46	L<A,U;U>A
Contract	82	140	64	148	34	69	
TMach	371	335	783	286	93	91	L<A,U;U>A
TOFC	158	167	346	194	31	21	L<A,U;U>A
TFCexclLand	1153	1134	2596	1051	193	148	L<A,U;U>A
Land	264	195	351	325	178	26	
TFC	1418	1235	2948	1222	372	160	L<A,U;U>A
NFI	376	833	1489	619	-110	159	L<A,U;U>A
FSLab	77	189	117	217	13	36	
TC	2542	2707	5356	3532	651	444	L<A,U;U>A
NM	300	836	1371	717	-123	185	L<A,U;U>A
No. in sample	69		17		17		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.31: Fresh Vegetables - Field Scale Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	28.23	29.97	17.65	22.86	32.11	31.77	
Yield (t/ha)	10.21	16.13	22.56	24.98	2.88	2.32	U>A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TotOut	2675	3676	7378	6211	550	138	L<A,U;U>A
Seeds	247	335	573	624	75	64	L<A,U>A
Fert	81	113	156	204	17	15	L<A,U
Sprays	150	132	240	158	72	28	L<A,U;U>A
OtherVC	386	1114	1556	2169	53	99	U>L,A
Fuel	20	46	18	39	0	0	
TVC	884	1346	2544	2316	217	130	U>L,A
GM	1792	2701	4835	4937	333	142	L<A,U;U>A
Lab	483	887	1443	1594	43	38	U>L,A
Contract	116	264	303	532	32	45	
TMach	359	324	845	288	89	66	L<A,U;U>A
TOFC	133	578	256	1328	81	47	
TFCexclLand	1092	1478	2847	2549	245	84	L<A,U;U>A
Land	225	265	245	566	180	51	
TFC	1316	1668	3092	3066	425	109	L<A,U;U>A
NFI	476	1134	1743	2045	-93	160	U>L,A
FSLab	128	324	395	646	15	19	U>L,A
TC	2328	2954	6030	4981	658	158	L<A,U;U>A
NM	347	942	1348	1705	-108	163	U>L,A
No. in sample	56		15		15		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower. No. in sample = Number of enterprise in sample

3.2.11 Fresh Vegetables – Market Garden

Results for vegetable production defined as market garden produce are presented in Table 3.32. The relatively small sample sizes presented for the two years suggest that a substantial change in the enterprises included in the sample occurred between 2004 and 2005, as indicated by the large increase in average area of production from 2004 to 2005, and the significantly lower average yield in 2005. The large standard deviation associated with the average hectares per enterprise also suggest that a large variation in production systems and sizes exists within this enterprise category. The resultant large standard deviations associated with a substantial proportion of the mean results in Table 3.32 leads to no significant differences being detected between the two years. However, 2005 is characterised as achieving a lower output, combined with lower variable and fixed costs of production, which results in a larger net margin than the data for 2004.

Table 3.32: Fresh Vegetables - Market Garden Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	6.99	8.30	18.39	54.89	-1.09	
Yield (t/ha)	9.60	13.25	1.72	5.32	3.21	**
	£/ha	£/ha	£/ha	£/ha		
TotOut	7397	21731	5865	3598	0.41	
Seeds	1084	4714	740	465	0.43	
Fert	200	1027	183	90	0.10	
Sprays	192	1090	178	110	0.08	
OtherVC	845	3871	654	1521	0.27	
Fuel	120	1338	0	0	0.53	
TVC	2442	10448	1755	1890	0.38	
GM	4955	12459	4111	2248	0.39	
Lab	1751	6044	1658	1044	0.09	
Contract	72	156	67	138	0.14	
TMach	881	1868	799	356	0.26	
TOFC	579	1391	283	233	1.24	
TFCexclLand	3284	8770	2807	1426	0.32	
Land	458	836	312	270	0.98	
TFC	3742	9520	3118	1522	0.38	
NFI	1213	4112	992	1036	0.31	
FSLab	899	2331	433	1096	1.05	
TC	7082	20017	5306	3244	0.52	
NM	314	3800	560	1298	-0.36	
No. in sample	28		35			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

3.2.12 Fresh Vegetables – Protected Crops

Protected crops data for 2004 and 2005 are presented in Table 3.33. The indicative data on average hectares per enterprise and yield achieved suggests that the production systems present in the 2004 data are typically of a smaller scale, but with a substantially greater intensity of production, than the average results presented for 2005. These indicative results are reinforced by the significantly greater output achieved, and costs incurred, in 2004, in comparison to 2005. The results thus suggest that given the very large differences in outputs and costs between the two years, the sample of enterprises has changed between these two years to produce considerable variation in results that are unlikely to represent a real-terms change in the production, and performance, of this sector.

However, despite these significant and substantial differences in outputs and costs, the large variation in net margin achieved across the enterprises in both years leads to no significant difference in net margin being detected. Note however that the substantial loss of £14,000/ha for 2004 contrasts with the positive return of approximately £2500/ha in 2005, and the associated statistical test ($t=-1.85$) is approaching the level at which a statistically significant difference would have been detected; the relatively small sample size in part explains the lack of statistical significance in this case.

Table 3.33: Fresh Vegetables - Protected Crops Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	0.81	1.51	2.41	8.92	-0.95	
Yield (t/ha)	83.70	158.98	12.93	68.11	2.47	*
	£/ha	£/ha	£/ha	£/ha		
TotOut	175718	146433	57883	118513	3.64	***
Seeds	16252	35924	4392	14083	1.86	
Fert	6017	6115	1701	4033	3.48	***
Sprays	1141	1168	516	1999	1.50	
OtherVC	32569	37980	8285	21375	3.32	**
Fuel	23984	27584	8144	23114	2.56	*
TVC	79963	78478	23037	51587	3.58	***
GM	95755	84589	34846	70701	3.21	***
Lab	50780	50400	15063	32666	3.51	***
Contract	383	1354	80	532	1.26	
TMach	10634	8703	3712	6879	3.64	***
TOFC	23026	27877	6362	14321	3.18	**
TFCexcLand	84823	80761	25217	51421	3.68	***
Land	7649	9651	2059	4956	3.08	**
TFC	92472	85935	27275	55126	3.77	***
NFI	3283	41433	7571	25382	-0.52	
FSLab	17330	23785	5083	15171	2.57	*
TC	189765	157274	55395	111101	4.10	***
NM	-14047	47720	2488	23999	-1.85	
No. in sample	29		38			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

3.2.13 Soft Fruit

Table 3.34 presents the results for 2004 and 2005 soft fruit enterprises; note that with 21 and 19 observations per year respectively, the overall sample size is statistically small and in part explains the lack of statistically significant results observed. The cropping year 2004 is characterised as a lower input – lower output production system than represented in the 2005 data. The total output of £13,300/ha in 2004 in comparison to £19,200/ha demonstrates this aspect, reinforced by the respective total costs of £12,800/ha and £17,300/ha. Other costs worthy of note include the labour cost (with substantial differences between years) and the land cost (almost identical in both years). Note that as identified for Fresh Vegetables – Protected above, the very large change in outputs, inputs and margins between the two years is indicative of changes in the sample of enterprises included in the data rather than accurately representing a real-terms change in enterprise production and performance

Table 3.34: Soft Fruit Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	5.59	9.43	4.94	9.90	0.21	
Yield (t/ha)	1.82	3.79	3.28	3.53	-1.26	
	£/ha	£/ha	£/ha	£/ha		
TotOut	13356	20363	19165	17852	-0.95	
Seeds	310	632	359	463	-0.28	
Fert	222	316	148	202	0.87	
Sprays	391	480	427	509	-0.23	
OtherVC	2837	5496	4484	4535	-1.03	
TVC	3760	6396	5419	4967	-0.91	
GM	9596	14108	13747	13664	-0.94	
Lab	5568	10253	7909	10163	-0.72	
Contract	212	298	291	384	-0.73	
TMach	1077	1574	1315	1123	-0.55	
TOFC	1145	1559	1136	858	0.02	
TFCexcLand	8001	13253	10650	12060	-0.66	
Land	425	533	424	250	0.01	
TFC	8426	13541	11074	12024	-0.65	
NFI	1170	2672	2673	3203	-1.62	
FSLab	567	1717	811	2116	-0.40	
TC	12753	20055	17304	16647	-0.78	
NM	603	3194	1862	3431	-1.20	
<i>No. in sample</i>	21		19			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

3.2.14 Top Fruit

The results for top fruit enterprises for 2004 and 2005 are presented in Table 3.35. Note that in both years, the average net margin for these enterprises is negative. However, associated with the negative margins, the standard deviation in each year indicates considerable variation around these average performance data suggesting that a number of enterprises will be returning positive net margins whilst recognising that a further proportion in each year will be incurring considerable losses per hectare. Only two measures in Table 3.35 are significantly different; average yield in 2005 was significantly greater than in 2004, which in part also accounts for the significantly greater gross margin in 2005.

Table 3.35: Top Fruit Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	17.85	33.74	21.78	41.67	-0.54	
Yield (t/ha)	10.42	7.60	15.14	7.18	-3.26	**
	£/ha	£/ha	£/ha	£/ha		
TOgrain	5250	3391	6299	3440	-1.57	
TotOut	5461	3512	6524	3613	-1.53	
Seeds	10	25	7	15	0.76	
Fert	57	43	60	58	-0.29	
Sprays	467	274	476	252	-0.18	
OtherVC	2310	1872	2609	1996	-0.79	
Fuel	0	1	0	0	1.43	
TVC	2844	2124	3152	2180	-0.73	
GM	2617	1739	3372	1930	-2.12	*
Lab	1655	1169	2087	1174	-1.89	
Contract	118	295	113	326	0.08	
TMach	599	318	695	379	-1.42	
TOFC	632	405	609	405	0.29	
TFCexcland	3004	1684	3505	1577	-1.57	
Land	310	298	279	178	0.65	
TFC	3314	1837	3783	1652	-1.37	
NFI	-697	1414	-411	1185	-1.12	
FSLab	273	418	367	545	-1.01	
TC	6431	3501	7302	3438	-1.29	
NM	-970	1434	-778	1239	-0.73	
<i>No. in sample</i>	58		48			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

Table 3.35 identified the average overall losses in each year for top fruit enterprises. Table 3.36 provides the results of the performance group data for 2004 and shows a number of differences between these groups. The upper performance group is characterised as achieving higher yields from a high input – high output production system derived from either added value activities and / or different market outlets. This is demonstrated by the overall total output being 11 times greater than output in the lower performance group. However, the upper performance group also incurs significantly greater variable and fixed costs, leading to total costs being substantially and significantly different. Average net margin for the upper performance group in 2004 is negative, but is approximately £1000/ha greater than the net margin for the lower performance group.

Table 3.37 presents the result for top fruit enterprises for 2005. A similar pattern to 2004 is presented for this group, and whilst yields are not significantly different in 2005, the high input – high output system of the upper performance group results in a difference in net margin of approximately £900/ha between this group and the lower performance group.

Table 3.36: Top Fruit Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	17.85	33.74	24.05	41.84	7.14	11.42	
Yield (t/ha)	10.42	7.60	12.35	6.31	3.70	3.81	L<A,U
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TOgrain	5250	3391	9122	2333	841	583	L<A,U;U>A
TotOut	5461	3512	9407	2409	844	588	L<A,U;U>A
Seeds	10	25	9	11	2	5	L<U
Fert	57	43	68	38	15	25	L<A,U
Sprays	467	274	662	228	98	87	L<A,U;U>A
OtherVC	2310	1872	3954	1853	176	330	L<A,U;U>A
Fuel	0	1	0	0	1	2	L>A,U
TVC	2844	2124	4693	2062	293	400	L<A,U;U>A
GM	2617	1739	4714	1307	551	273	L<A,U;U>A
Lab	1655	1169	2413	1093	556	604	L<A,U;U>A
Contract	118	295	153	276	32	74	
TMach	599	318	714	307	250	108	L<A,U
TOFC	632	405	862	287	294	399	L<A,U;U>A
TFCexcLand	3004	1684	4143	1282	1132	962	L<A,U;U>A
Land	310	298	420	421	198	98	L<U
TFC	3314	1837	4563	1530	1330	993	L<A,U;U>A
NFI	-697	1414	151	1328	-779	843	L<U;U>A
FSLab	273	418	369	541	425	386	
TC	6431	3501	9625	2527	2048	1374	L<A,U;U>A
NM	-970	1434	-218	1359	-1204	1028	L<U;U>A
No. in sample	58		19		19		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.37: Top Fruit Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	21.78	41.67	18.94	37.14	10.91	16.17	
Yield (t/ha)	15.14	7.18	16.32	7.96	13.43	9.83	
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TOgrain	6299	3440	9844	2995	1599	1039	L<A,U;U>A
TotOut	6524	3613	10293	3149	1604	1039	L<A,U;U>A
Seeds	7	15	20	20	3	16	U>L,A
Fert	60	58	50	78	39	43	
Sprays	476	252	588	173	178	136	L<A,U
OtherVC	2609	1996	3825	2338	282	718	L<A,U;U>A
Fuel	0	0	0	0	0	0	
TVC	3152	2180	4483	2460	502	843	L<A,U;U>A
GM	3372	1930	5810	1467	1102	539	L<A,U;U>A
Lab	2087	1174	3107	890	440	482	L<A,U;U>A
Contract	113	326	92	141	114	257	
TMach	695	379	962	522	350	151	L<A,U;U>A
TOFC	609	405	862	324	455	623	U>L,A
TFCexcLand	3505	1577	5022	1218	1360	798	L<A,U;U>A
Land	279	178	349	286	234	146	
TFC	3783	1652	5371	1343	1593	865	L<A,U;U>A
NFI	-411	1185	439	1527	-491	722	U>L,A
FSLab	367	545	542	754	491	515	
TC	7302	3438	10397	3036	2586	1376	L<A,U;U>A
NM	-778	1239	-103	1772	-982	878	
No. in sample	48		16		16		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.15 Broilers

Table 3.38 presents enterprise data for 2004 and 2005 for broiler production. The relatively small sample sizes of 20 and 24 respectively underline the specialist nature of this sector. Table 3.38 shows that whilst variation, both within and across years exists, there are no significant differences in outputs, costs and margins between 2004 and 2005 for broiler production.

Table 3.38: Broilers Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Broilers/Ent	615367	501211	532022	516518	0.54	
	£/bird	£/bird	£/bird	£/bird		
TO	0.97	0.18	0.96	0.32	0.16	
Conc	0.68	0.15	0.66	0.15	0.46	
V.Med	0.02	0.01	0.02	0.01	0.09	
OLC	0.03	0.01	0.03	0.02	-0.64	
TVC	0.73	0.14	0.71	0.16	0.44	
GM	0.24	0.14	0.25	0.21	-0.13	
Lab	0.04	0.07	0.03	0.09	0.33	
Contract	0.02	0.02	0.02	0.02	0.40	
TMach	0.03	0.02	0.03	0.03	-0.15	
TOFC	0.04	0.03	0.06	0.06	-1.31	
TFCexcLand	0.13	0.11	0.14	0.17	-0.22	
Land	0.02	0.03	0.01	0.03	1.51	
TFC	0.15	0.12	0.15	0.19	0.07	
NFI	0.09	0.08	0.10	0.08	-0.44	
FSLab	0.01	0.03	0.02	0.04	-0.37	
TC	0.90	0.20	0.88	0.33	0.23	
NM	0.07	0.09	0.08	0.09	0.54	
<i>No. in sample</i>	20		24			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

3.2.16 Laying Hens

Table 3.39 presents the results of the output, costs and margins for laying hen enterprises in 2004 and 2005. The results indicate that there are no significant differences in the key output, cost and margin data, with only total other fixed costs identified as significantly different between the two years presented. However, the net margin result averaging 51p/hen and 67p/hen for 2004 and 2005 respectively is associated with relatively large standard deviation results indicating a wide variation in performance across enterprises in both years.

Table 3.39: Laying Hens Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Hens/Ent	17459	36480	16244	33990	0.17	
	£/hen	£/hen	£/hen	£/hen		
TO	10.37	2.67	10.73	3.03	-0.63	
Conc	5.58	0.97	5.48	1.41	0.41	
V.Med	0.04	0.06	0.05	0.10	-0.96	
OLC	0.44	0.47	0.45	0.49	-0.13	
TVC	6.06	1.07	5.99	1.50	0.27	
GM	4.31	2.05	4.74	2.20	-1.01	
Lab	1.66	0.91	1.67	0.72	-0.04	
Contract	0.12	0.14	0.15	0.20	-1.11	
TMach	0.65	0.36	0.69	0.39	-0.50	
TOFC	0.64	0.34	0.79	0.38	-2.08	*
TFCexcLand	3.07	1.28	3.30	1.00	-1.02	
Land	0.14	0.20	0.16	0.29	-0.23	
TFC	3.21	1.34	3.46	1.09	-1.01	
NFI	1.10	2.04	1.29	1.87	-0.47	
FSLab	0.59	1.15	0.61	0.98	-0.09	
TC	9.86	2.98	10.06	2.71	-0.34	
NM	0.51	2.15	0.67	1.74	-0.43	
No. in sample	49		52			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Tables 3.40 and 3.41 present results for laying hen data by performance groups across 2004 and 2005 respectively. From Table 3.40, the upper performance group is characterised as achieving significantly greater output per hen, whilst incurring significantly greater total variable costs, total fixed costs and total costs. However, the greater output of the upper performance group leads to significantly greater gross and net margins per hen, albeit that the average net margin for the lower performance group remains positive. The key factors that further explain the difference between the performance groups are the average number of hens per enterprise, the land cost per hen and the concentrate cost per hen. The upper performance group represents, on average, a smaller production system, incurring higher concentrate cost and higher land costs per hen. These indicators suggest that the upper performance group, as considered by gross margin per hen, are likely to be free-range and / or organic producers who produce a higher value of output per hen from a less intensive production system which relies upon greater land input per hen and an associated increase in feed cost, particularly so for organic production.

Table 3.41, presenting the results for 2005, demonstrates a very similar pattern to that for 2004, however, in 2005, the lower performance group made a small loss per hen in contrast to a small positive margin in 2004.

Table 3.40: Laying Hens Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Hens/Ent	17459	36480	5337	4535	28157	56507	
	£/hen	£/hen	£/hen	£/hen	£/hen	£/hen	
TO	10.37	2.67	15.70	2.09	8.76	1.41	L<A,U; U>A
Conc	5.58	0.97	6.34	1.20	5.42	0.76	U>L,A
V.Med	0.04	0.06	0.07	0.10	0.02	0.03	
OLC	0.44	0.47	0.34	0.41	0.29	0.46	
TVC	6.06	1.07	6.76	1.37	5.73	0.96	U>L,A
GM	4.31	2.05	8.94	1.18	3.03	0.83	L<A,U; U>A
Lab	1.66	0.91	2.01	2.18	1.58	0.61	
Contract	0.12	0.14	0.13	0.23	0.11	0.09	
TMach	0.65	0.36	0.94	0.48	0.50	0.27	U>L,A
TOFC	0.64	0.34	1.07	0.57	0.52	0.22	U>L,A
TFCexcLand	3.07	1.28	4.14	2.85	2.72	0.84	
Land	0.14	0.20	0.22	0.20	0.11	0.09	U>L,A
TFC	3.21	1.34	4.36	2.89	2.83	0.90	U>A
NFI	1.10	2.04	4.58	2.58	0.21	1.48	U>L,A
FSLab	0.59	1.15	1.95	1.91	0.15	0.82	U>L,A
TC	9.86	2.98	13.07	5.16	8.70	2.12	U>L,A
NM	0.51	2.15	2.63	3.70	0.06	1.81	U>L,A
No. in sample	49		16		16		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.41: Hens Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Hens/Ent	16244	33990	7811	6998	20509	48459	
	£/hen	£/hen	£/hen	£/hen	£/hen	£/hen	
TO	10.73	3.03	15.68	2.21	8.46	0.99	L<A,U; U>A
Conc	5.48	1.41	6.73	1.40	4.99	1.00	U>L,A
V.Med	0.05	0.10	0.06	0.06	0.02	0.13	
OLC	0.45	0.49	0.54	0.60	0.25	0.45	
TVC	5.99	1.50	7.33	1.45	5.27	1.14	U>L,A
GM	4.74	2.20	8.35	1.96	3.19	1.16	L<A,U; U>A
Lab	1.67	0.72	1.91	1.04	1.71	0.57	
Contract	0.15	0.20	0.30	0.31	0.16	0.11	U>A
TMach	0.69	0.39	0.88	0.35	0.48	0.34	L<U
TOFC	0.79	0.38	1.20	0.46	0.70	0.28	U>L,A
TFCexcLand	3.30	1.00	4.29	1.44	3.05	0.49	U>L,A
Land	0.16	0.29	0.40	0.41	0.06	0.16	U>L,A
TFC	3.46	1.09	4.68	1.41	3.11	0.53	U>L,A
NFI	1.29	1.87	3.66	1.77	0.08	1.37	L<A,U; U>A
FSLab	0.61	0.98	2.00	1.31	0.17	0.40	U>L,A
TC	10.06	2.71	14.02	2.33	8.55	1.42	L<A,U; U>A
NM	0.67	1.74	1.66	2.42	-0.09	1.42	U>L
No. in sample	52		17		17		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.17 Pigs

Table 3.42 presents enterprise data for 2004 and 2005 for pigs (breeder-finisher herds). Whilst there is variation between 2004 and 2005 in a number of cases, for example the increase in gross margin approaching £80/sow, and the increase in total costs of approximately £65/sow, no statistically significant differences in outputs, costs and margins between 2004 and 2005 are observed. Note that whilst no significant difference is observed in net margin between the two years, in 2004 a small, negative net margin is recorded; by contrast in 2005 a positive margin is returned.

Table 3.42: Pigs, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Sows/Ent	134.51	160.92	139.01	156.12	-0.15	
	£/sow	£/sow	£/sow	£/sow		
TO	1402	362	1493	400	-1.28	
Conc	768	208	766	195	0.03	
Crse.Fod	0	1	0	0	0.51	
V.Med	48	23	50	31	-0.26	
OLC	114	63	127	66	-1.06	
Fuel	1	5	2	6	-0.75	
TVC	931	245	944	239	-0.30	
GM	471	222	548	231	-1.82	
Lab	199	110	216	155	-0.66	
Contract	13	28	19	33	-1.05	
TMach	93	50	83	46	1.06	
TOFC	75	39	90	50	-1.80	
TFCexcLand	381	153	408	207	-0.82	
Land	28	24	40	61	-1.40	
TFC	409	155	448	209	-1.16	
NFI	62	209	100	223	-0.93	
FSLab	71	104	82	102	-0.57	
TC	1411	352	1475	385	-0.93	
NM	-9	244	18	244	-0.58	
<i>No. in sample</i>	59		56			

* significant 95%; ** significant 99%; *** significant 99.9%. *No. in sample* = Number of enterprise in sample

Tables 3.43 and 3.44 present the pig enterprise data by performance groups for 2004 and 2005 respectively. The upper performance group in 2004 has significantly greater herd size and total output per sow than the average and lower performance groups; with no significant difference between the groups in respect to total variable costs, the greater output of the upper performance group results in a significantly greater average gross margin return. The upper performance group incurs greater labour and contract costs than the lower performance group, and total fixed costs are significantly greater for the upper performance group in comparison to the average and lower performance group. Contrasting with paid labour, the smaller herd size of the lower performance group is associated with significantly greater farmer and spouse labour. No significant differences are observed across the groups for total costs. However, the difference in output achieved leads to significant differences in net margin between the upper performance group and the average and lower performance groups, and additionally between the average and lower performance group. Net margins for the lower performance group averaged minus £435/sow in 2004.

The results by performance groups for 2005 (Table 3.44) largely follow the pattern noted for 2004, however more cost differences are observed between the

groups. In 2005, the upper performance group records significantly greater herd size than the lower performance group, yet not significantly different to the average performance group. In 2005, total variable costs are significantly greater for the upper performance group in comparison to the lower performance group, and significant differences are noted across all groups at gross margin level. Paid labour is significantly lower for the lower performance group, but this contrasts with the significantly greater value of farmer and spouse labour for this group in comparison to the average and upper performance groups. Machinery costs are significantly lower for the lower performance group; total fixed, and overall total costs are significantly greater for the upper performance group in comparison to the both the average and lower performance groups, and additionally the average performance group records greater costs than the lower performance group. Net margin is significantly greater for the upper performance group compared with the average and lower performance groups, and significantly greater for the average performance group compared to the lower performance group; the latter achieving a negative net margin, albeit lower in magnitude than for 2004.

Table 3.43: Pigs Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Sows/Ent	134.51	160.92	291.84	235.39	49.14	65.25	L<A,U;U>A
	£/sow	£/sow	£/sow	£/sow	£/sow	£/sow	
TO	1402	362	1652	251	1049	378	L<A,U;U>A
Conc	768	208	797	160	815	349	
Crse.Fod	0	1	0	0	1	3	
V.Med	48	23	57	21	30	21	L<A,U
OLC	114	63	111	73	117	63	
Fuel	1	5	0	0	6	13	L>A
TVC	931	245	966	188	969	402	
GM	471	222	686	81	80	131	L<A,U;U>A
Lab	199	110	258	93	148	128	L<U
Contract	13	28	15	8	5	14	L<U
TMach	93	50	108	38	89	94	
TOFC	75	39	77	47	89	48	
TFCexcLand	381	153	458	119	332	201	L<U
Land	28	24	37	27	21	29	
TFC	409	155	495	117	353	197	L<U;U>A
NFI	62	209	192	112	-273	290	L<A,U;U>A
FSLab	71	104	38	58	163	136	L>A,U
TC	1411	352	1499	265	1485	610	
NM	-9	244	153	107	-435	323	L<A,U;U>A
No. in sample	59		15		15		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

Table 3.44: Pigs Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Sows/Ent	139.01	156.12	171.47	133.62	58.48	81.00	L<U
	£/sow	£/sow	£/sow	£/sow	£/sow	£/sow	
TO	1493	400	1877	307	1038	229	L<A,U;U>A
Conc	766	195	849	203	739	196	
Crse.Fod	0	0	0	0	0	0	
V.Med	50	31	49	19	31	14	L<A,U
OLC	127	66	175	46	81	44	L<A,U;U>A
Fuel	2	6	0	0	0	0	
TVC	944	239	1073	228	850	222	L<U
GM	548	231	804	128	188	71	L<A,U;U>A
Lab	216	155	297	129	73	62	L<A,U
Contract	19	33	25	54	14	20	
TMach	83	46	91	45	54	48	L<A,U
TOFC	90	50	120	54	75	36	L<U;U>A
TFCexcLand	408	207	534	216	216	86	L<A,U;U>A
Land	40	61	31	30	21	18	
TFC	448	209	565	216	237	90	L<A,U
NFI	100	223	239	221	-49	81	L<A,U;U>A
FSLab	82	102	68	65	167	152	L>A,U
TC	1475	385	1705	404	1254	295	L<A,U;U>A
NM	18	244	171	214	-216	171	L<A,U;U>A
<i>No. in sample</i>	<i>56</i>		<i>15</i>		<i>15</i>		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.18 Dairy Cows

Results for dairy production in 2004 and 2005 are presented in Table 3.45. No significant difference in output and variable costs are identified between the two years presented, however the marginally greater output, combined with a marginally lower total variable cost in 2004, in comparison to 2005, leads to a significantly greater gross margin in 2004. Both machinery and total other fixed costs are significantly greater in 2005, producing total costs approximately £70/cow greater in 2005 than in 2004, and significantly so. The average net margin in 2005 demonstrates a significant average loss to this enterprise, over £100/cow lower than in 2004.

Table 3.45: Dairy Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Cows/Ent	91.91	69.71	92.31	74.86	-0.07	
Area (ha/cow)	0.55	0.23	0.56	0.22	-0.80	
	£/cow	£/cow	£/cow	£/cow		
TO	1291	297	1256	295	1.51	
Conc	272	102	275	117	-0.45	
Crse.Fod	17	25	21	44	-1.75	
V.Med	42	21	46	25	-1.96	
OLC	107	49	106	50	0.32	
Seeds	8	8	9	8	-0.52	
Fert	35	17	34	20	0.75	
Sprays	5	5	4	5	1.47	
OtherVC	6	7	6	6	0.53	
TVC	492	147	502	165	-0.77	
GM	799	228	754	219	2.54	*
Lab	180	114	190	124	-1.09	
Contract	47	30	51	41	-1.52	
TMach	134	52	163	61	-6.36	***
TOFC	100	37	113	49	-3.64	***
TFCexcland	462	150	517	170	-4.40	***
Land	134	45	128	47	1.50	
TFC	595	161	645	184	-3.68	***
NFI	203	218	109	226	5.43	***
FSLab	178	145	189	150	-0.99	
TC	1266	259	1336	288	-3.29	***
NM	26	253	-80	268	5.19	***
No. in sample	333		321			

* significant 95%; ** significant 99%; *** significant 99.9%. No. in sample = Number of enterprise in sample

Tables 3.46 and 3.47 present the dairy enterprise data by performance groups. In 2004 the upper performance group is characterised by more intensive dairy production systems than the lower performance group. The upper performance group has significantly greater herd size with lower hectares per cow, but with significantly larger total variable costs (in the main due to differences in concentrate costs) leading to a significantly greater gross margin, and additionally incurs significantly greater total fixed costs and total costs. The more intensive and larger production systems of the upper performance group led to an increase in net margin over the lower performance group of approximately £480/cow. It is instructive to note that whilst the upper performance group incurs higher labour costs per cow, the value of farmer and spouse labour for the upper performance group is significantly lower than for the lower performance group; this result flows from the larger herd size identified for the upper performance group, and the greater reliance on paid labour, rather than farmer and spouse labour, the former more common for larger herds.

The results by performance groups for 2005 (Table 3.47) reinforce the findings from 2004 where the upper performance group typifies larger, more intensive production systems. The difference in net margin performance between the upper and lower performance groups in 2005, at £460/cow is very comparable with the 2004 data.

Table 3.46: Dairy Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	91.91	69.71	122.57	71.52	64.79	63.57	L<A,U;U>A
Area (ha/cow)	0.55	0.23	0.52	0.12	0.62	0.40	L>A,U
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	1291	297	1588	178	923	231	L<A,U;U>A
Conc	272	102	300	89	239	125	L<A,U;U>A
Crse.Fod	17	25	14	21	15	20	
V.Med	42	21	47	22	36	18	L<A,U
OLC	107	49	106	43	113	59	
Seeds	8	8	12	9	5	7	L<A,U;U>A
Fert	35	17	34	16	34	22	
Sprays	5	5	6	5	3	4	L<A,U;U>A
OtherVC	6	7	6	7	5	5	
TVC	492	147	525	133	448	168	L<A,U
GM	799	228	1063	108	475	130	L<A,U;U>A
Lab	180	114	228	102	172	116	U>L,A
Contract	47	30	46	30	41	30	
TMach	134	52	155	43	110	48	L<A,U;U>A
TOFC	100	37	109	35	94	46	U>L,A
TFCexcLand	462	150	539	130	416	170	L<A,U;U>A
Land	134	45	149	47	118	39	L<A,U;U>A
TFC	595	161	688	138	534	179	L<A,U;U>A
NFI	203	218	375	143	-59	198	L<A,U;U>A
FSLab	178	145	144	118	188	148	U<L
TC	1266	259	1357	234	1170	304	L<A,U;U>A
NM	26	253	231	178	-247	235	L<A,U;U>A
No. in sample	333		83		83		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.47: Dairy Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	92.31	74.86	137.50	93.99	61.43	44.42	L<A,U;U>A
Area (ha/cow)	0.56	0.22	0.53	0.15	0.62	0.36	U>L
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	1256	295	1546	212	907	222	L<A,U;U>A
Conc	275	117	306	125	242	140	L<A,U;U>A
Crse.Fod	21	44	14	24	21	47	
V.Med	46	25	49	26	39	21	L<A,U
OLC	106	50	112	48	107	64	
Seeds	9	8	11	7	6	8	L<A,U;U>A
Fert	34	20	29	18	35	23	U<L,A
Sprays	4	5	6	6	3	5	L<A,U;U>A
OtherVC	6	6	6	6	5	6	
TVC	502	165	533	173	459	203	L<A,U
GM	754	219	1013	108	447	125	L<A,U;U>A
Lab	190	124	256	98	158	142	L<A,U;U>A
Contract	51	41	46	43	41	32	L<A
TMach	163	61	189	62	140	60	L<A,U;U>A
TOFC	113	49	113	42	105	60	
TFCexcLand	517	170	604	144	445	196	L<A,U;U>A
Land	128	47	145	44	99	40	L<A,U;U>A
TFC	645	184	749	146	544	204	L<A,U;U>A
NFI	109	226	264	182	-97	246	L<A,U;U>A
FSLab	189	150	129	100	226	180	U<L,A
TC	1336	288	1411	286	1230	344	L<A,U;U>A
NM	-80	268	135	206	-323	277	L<A,U;U>A
No. in sample	321		80		80		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.19 LFA Suckler Cows

Table 3.48 details the results for 2004 and 2005 LFA suckler enterprises. Note that for this enterprise, 2005 also brought about the removal of production linked subsidies. However, the analysis presented in Table 3.48 (and Table 3.51) do not present an estimate of the value of subsidy to total output due to small sample sizes of specialist suckler farms not allowing a reliable estimate to be produced. This caveat is of direct importance in Table 3.48 where the value of total output between 2004 and 2005 is significantly different; the main factor leading to this result is almost certainly the removal of production linked subsidy. This argument is reinforced by analysis of the cost data between these two years, whereby no significant differences in variable costs are noted, and in total, variable costs are almost identical between the two years. Given the significant difference in total output, gross margins are significantly different between 2004 and 2005. In relation to fixed costs, only total other fixed costs differ between the two years and with respect to total costs, no significant difference is noted. Net margin is significantly lower in 2005, driven almost exclusively by the difference in total output.

Table 3.48: LFA Suckler Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Cows/Ent	44.03	31.75	40.61	32.68	1.04	
Area (ha/cow)	1.29	0.97	1.47	1.22	-1.62	
	£/cow	£/cow	£/cow	£/cow		
TO	377	165	232	116	9.91	***
Conc	39	51	37	37	0.47	
Crse.Fod	15	21	16	23	-0.18	
V.Med	16	13	16	13	-0.04	
OLC	29	25	33	25	-1.48	
Seeds	1	3	1	3	-0.38	
Fert	23	15	23	17	0.42	
Sprays	1	2	1	3	-0.36	
OtherVC	3	5	4	4	-0.11	
TVC	129	78	131	65	-0.23	
GM	248	169	101	107	10.12	***
Lab	41	49	39	58	0.34	
Contract	19	17	20	20	-0.65	
TMach	70	47	66	42	1.04	
TOFC	37	23	56	29	-7.34	***
TFCexcLand	167	88	181	93	-1.52	
Land	122	59	113	55	1.49	
TFC	289	115	295	117	-0.45	
NFI	-42	136	-193	133	11.08	***
FSLab	103	90	109	111	-0.60	
TC	522	182	535	199	-0.68	
NM	-145	159	-303	173	9.30	***
No. in sample	193		191			

* significant 95%; ** significant 99%; *** significant 99.9%. Insufficient data to undertake subsidy calculation for 2004. No. in sample = Number of enterprise in sample

The results of the analysis by performance groups for 2004 for LFA suckler enterprises (Table 3.49) demonstrates that the upper performance group achieved significantly greater output, whilst incurring significantly lower total variable costs, but with higher total fixed costs, leading to a significantly greater net margin. The lower performance group incurred significantly greater concentrate and coarse fodder costs, whilst the upper performance group

incurred significantly lower veterinary and spray costs. Total variable costs are significantly lower for the upper performance group and the significant difference in gross margin between the upper and lower performance groups exceeds £400/cow. However, with the exception of contract and land costs, the upper performance group incurred significantly greater fixed costs and overall total costs are lowest for the lower performance group. The difference at net margin level exceeds £200/cow between the upper and lower performance groups, with the difference in this performance measure being statistically significant across the groups. Note that the average net margin even for the upper performance group is negative.

Table 3.50 presents results for LFA suckler enterprises for 2005 by performance group. The pattern noted in 2004 holds for 2005, with the upper performance group achieving greater output, incurring lower variable costs, expending greater fixed costs, but returning a significantly greater net margin than the lower performance group. In respect to net margin returns, the results in Table 3.47 indicate that the majority of those enterprises within the upper performance group returned a negative net margin for the enterprise. Total costs do not differ significantly between the performance groups; the difference in net margin thus being driven largely by differences in total output.

Table 3.49: LFA Suckler Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	44.03	31.75	42.02	27.79	36.60	29.70	
Area (ha/cow)	1.29	0.97	1.36	0.92	1.38	1.50	
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	377	165	529	203	188	111	L<A,U; U>A
Conc	39	51	20	23	64	84	L>A,U; U<A
Crse.Fod	15	21	9	16	23	25	L>A,U
V.Med	16	13	12	10	18	14	U<L,A
OLC	29	25	24	16	34	35	
Seeds	1	3	1	4	1	1	
Fert	23	15	23	16	23	16	
Sprays	1	2	2	2	1	2	U>L
OtherVC	3	5	5	7	2	4	L<A,U
TVC	129	78	96	51	164	117	L>A,U; U<A
GM	248	169	433	166	24	105	L<A,U; U>A
Lab	41	49	54	62	15	22	L<A,U
Contract	19	17	16	14	16	15	
TMach	70	47	88	54	37	29	L<A,U; U>A
TOFC	37	23	50	24	20	13	L<A,U; U>A
TFCexcLand	167	88	209	104	88	45	L<A,U; U>A
Land	122	59	136	69	116	77	
TFC	289	115	344	141	204	93	L<A,U; U>A
NFI	-42	136	88	106	-179	116	L<A,U; U>A
FSLab	103	90	133	90	69	90	L<A,U; U>A
TC	522	182	574	216	437	200	L<A,U
NM	-145	159	-45	146	-248	152	L<A,U; U>A
No. in sample	193		48		48		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.50: LFA Suckler Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	40.61	32.68	44.54	39.14	33.67	31.58	
Area (ha/cow)	1.47	1.22	1.14	0.83	1.73	1.72	U<L
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	232	116	345	142	149	61	L<A,U;U>A
Conc	37	37	33	42	56	43	L>A,U
Crse.Fod	16	23	10	16	31	30	L>A,U
V.Med	16	13	13	12	18	13	U<L
OLC	33	25	28	21	46	34	L>A,U
Seeds	1	3	1	2	1	3	
Fert	23	17	23	17	20	17	
Sprays	1	3	1	2	1	2	
OtherVC	4	4	4	5	3	4	
TVC	131	65	112	75	175	56	L>A,U
GM	101	107	232	83	-26	46	L<A,U;U>A
Lab	39	58	50	62	18	41	L<A,U
Contract	20	20	18	19	17	14	
TMach	66	42	83	45	47	40	L<A,U;U>A
TOFC	56	29	52	26	48	28	
TFCexcLand	181	93	204	92	130	72	L<A,U
Land	113	55	110	62	115	58	
TFC	295	117	313	114	245	93	L<A,U
NFI	-193	133	-81	104	-271	95	L<A,U;U>A
FSLab	109	111	130	129	95	114	
TC	535	199	556	222	515	190	
NM	-303	173	-211	154	-366	169	L<A,U;U>A
No. in sample	191		48		48		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.20 Lowland Suckler Cows

The average output, costs and returns to lowland suckler production is presented in Table 3.51. As noted above, it has not been possible to estimate the value of subsidy for the 2004 output for this enterprise, however the significant reduction in total output from 2004 to 2005 will be largely accounted for by the removal of production linked subsidies. Whilst no difference in total variable costs is identified, both concentrate and veterinary costs are significantly lower in 2005 in comparison to 2004. The reduced output for 2005 has led to a significant reduction in gross margin. Total other fixed costs are significantly greater in 2005, however overall total costs are very similar between the two years of interest. The lower total output of 2005 (by £115/cow) feeds through directly to the significantly lower net margin, which results in losses for 2005 for the majority of enterprises.

Table 3.51: Lowland Suckler Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Cows/Ent	36.73	31.70	34.42	30.00	0.86	
Area (ha/cow)	0.84	0.35	0.86	0.43	-0.42	
	£/cow	£/cow	£/cow	£/cow		
TO	321	172	204	103	9.48	***
Conc	42	53	32	39	2.40	*
Crse.Fod	8	18	6	14	1.12	
V.Med	19	16	15	14	2.38	*
OLC	37	35	39	42	-0.58	
Seeds	3	8	4	7	-0.35	
Fert	22	20	21	25	0.25	
Sprays	2	5	3	18	-0.41	
OtherVC	4	7	4	6	-0.13	
TVC	136	88	124	92	1.57	
GM	184	183	80	121	7.74	***
Lab	40	50	34	51	1.18	
Contract	29	34	29	37	-0.01	
TMach	51	49	53	38	-0.61	
TOFC	42	35	62	48	-5.58	***
TFCexcland	161	112	179	114	-1.78	
Land	119	61	113	87	0.97	
TFC	281	145	292	163	-0.83	
NFI	-96	185	-212	203	6.84	***
FSLab	81	85	78	83	0.36	
TC	498	215	494	231	0.20	
NM	-177	189	-290	212	6.46	***
No. in sample	265		267			

* significant 95%; ** significant 99%; *** significant 99.9%. Insufficient data to undertake subsidy calculation for 2004. No. in sample = Number of enterprise in sample

Tables 3.52 and 3.53 provide results of the lowland suckler enterprises for 2004 and 2005 respectively. The upper performance group in 2004 used a larger area per cow than all enterprises taken together, and additionally achieves a significantly greater total output (Table 3.52). The lower performance group incurred significantly greater concentrate, seed and other variable costs, leading to total variable costs for the lower performance group significantly exceeding the average total variable cost incurred by the upper performance group. Gross margin differs significantly across the groups, whilst the upper performance group incurred significantly greater fixed costs (except contract and land). Total costs differ significantly, however, the upper performance group achieved a greater net margin, albeit that on average, for each group, net margins are negative.

For 2005 (Table 3.53) the greater output, lower variable costs, yet higher fixed costs characteristic of the upper performance group in 2004 remain in place. However, for 2005, no significant difference in total cost is recorded albeit that numerically, a substantial difference exists. Significant differences in net margins are observed, with the upper performance group recording the lowest loss of all the groups; the standard deviation associated with the average net margin in the upper performance group indicates that even within this performance group, the majority of enterprises recorded a negative net margin in 2005.

Table 3.52: Lowland Suckler Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	36.73	31.70	33.90	27.82	29.87	28.71	
Area (ha/cow)	0.84	0.35	0.94	0.42	0.82	0.42	U>A
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	321	172	523	177	115	73	L<A,U;U>A
Conc	42	53	30	43	79	88	L>A,U
Crse.Fod	8	18	8	22	9	26	
V.Med	19	16	16	17	22	23	
OLC	37	35	34	31	47	47	
Seeds	3	8	3	6	6	12	L>A
Fert	22	20	21	18	23	25	
Sprays	2	5	2	4	3	8	
OtherVC	4	7	3	4	6	12	U<L
TVC	136	88	116	77	195	134	L>A,U
GM	184	183	407	129	-80	106	L<A,U;U>A
Lab	40	50	63	71	15	24	L<A,U;U>A
Contract	29	34	25	32	29	34	
TMach	51	49	85	59	22	25	L<A,U;U>A
TOFC	42	35	55	38	17	17	L<A,U;U>A
TFCexcland	161	112	228	129	83	81	L<A,U;U>A
Land	119	61	132	62	121	94	
TFC	281	145	360	171	204	159	L<A,U;U>A
NFI	-96	185	47	141	-284	211	L<A,U;U>A
FSLab	81	85	131	118	31	36	L<A,U;U>A
TC	498	215	607	258	430	247	L<A,U;U>A
NM	-177	189	-84	195	-315	212	L<A,U;U>A
No. in sample	265		66		66		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.53: Lowland Suckler Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Cows/Ent	34.42	30.00	31.27	25.22	30.87	21.96	
Area (ha/cow)	0.86	0.43	0.81	0.43	0.95	0.61	
	£/cow	£/cow	£/cow	£/cow	£/cow	£/cow	
TO	204	103	307	93	104	90	L<A,U;U>A
Conc	32	39	18	22	55	58	L>A,U;U<A
Crse.Fod	6	14	7	15	7	21	
V.Med	15	14	14	17	25	20	L>A,U
OLC	39	42	28	26	71	67	L>A,U;U<A
Seeds	4	7	2	3	6	12	U<L
Fert	21	25	19	17	28	44	
Sprays	3	18	2	3	4	40	
OtherVC	4	6	4	6	4	7	
TVC	124	92	94	55	199	153	L>A,U;U<A
GM	80	121	213	71	-94	110	L<A,U;U>A
Lab	34	51	45	51	19	26	L<A,U
Contract	29	37	29	51	34	42	
TMach	53	38	74	37	27	27	L<A,U;U>A
TOFC	62	48	74	43	59	77	
TFCexcland	179	114	221	114	138	125	L<A,U;U>A
Land	113	87	104	57	123	158	
TFC	292	163	325	143	261	242	
NFI	-212	203	-112	138	-356	319	L<A,U;U>A
FSLab	78	83	115	91	26	31	L<A,U;U>A
TC	494	231	534	204	486	361	
NM	-290	212	-227	172	-382	321	L<A,U;U>A
No. in sample	267		67		67		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.21 Fat Cattle from Dairy Bred Calves

The multitude of different beef systems that exists means that analysis of this data grouping requires a robust method of data analysis not provided by per head analysis. Undertaking the analysis by per head of animal would lead to different ages of animal production systems being incorrectly directly compared with each other. For this reason, this production system has been considered on a per hectare basis, as presented in Table 3.54. The subsidy change introduced in 2005 removed the headage and direct payments to beef animals. The significant reduction in total output between 2004 and 2005 is in part explained by the loss of direct subsidy to the enterprise, approximated to be worth £333 per hectare. However, the reduction in output from 2004 to 2005 is approximately £500/ha indicating that a substantial reduction in the direct value of production occurred between these two years. Whilst fertiliser costs are the only variable cost that is significantly different between the two years examined, total variable costs in 2005 are approximately £115/ha lower than in 2004, although not statistically significant in their reduction. The gross margin for 2005 at just under £200/ha, is significantly lower than the gross margin of £590/ha for 2004; note that the latter includes subsidy payments. Significantly lower total fixed costs are recorded for 2005 resulting from lower other fixed costs and land costs. Labour and machinery costs do not differ significantly, nor substantially between these two years. The significantly lower net margin for 2005 is £280/ha lower than for 2004; given the value of the subsidy in 2004 of approximately £330/ha, returns to production activities *per se* were arguably greater in 2005 than for 2004.

Table 3.54: Fat Cattle from Dairy Bred Calves Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	38.03	29.87	40.45	35.20	-0.46	
TO	£/ha	£/ha	£/ha	£/ha		
	1202	1022	696	828	3.37	***
<i>of which subsidy[#]</i>	324		-			
Conc	383	551	303	523	0.91	
Crse.Fod	9	22	23	62	-1.73	
V.Med	37	41	27	35	1.49	
OLC	106	112	83	103	1.33	
Seeds	10	15	10	11	-0.09	
Fert	55	50	40	35	2.15	*
Sprays	4	7	5	9	-0.84	
OtherVC	10	24	8	10	0.61	
TVC	614	700	500	657	1.04	
GM	589	480	196	338	5.88	***
Lab	92	94	93	92	-0.08	
Contract	55	140	42	53	0.76	
TMach	114	127	100	98	0.75	
TOFC	86	66	59	25	3.41	***
TFCexcLand	347	252	295	182	1.48	
Land	188	60	154	61	3.40	***
TFC	535	283	449	209	2.15	*
NFI	54	320	-253	271	6.39	***
FSLab	123	152	100	152	0.94	
TC	1272	1019	1048	920	1.42	
NM	-69	300	-352	283	5.98	***
<i>No. in sample</i>	72		80			

* significant 95%; ** significant 99%; *** significant 99.9%. # see section 2.7 for explanation of subsidy calculation. *No. in sample* = Number of enterprise in sample

The results by performance group for 2004 are presented in Table 3.55. The upper performance group is characterised by achieving a significantly greater output per hectare from a high input – high output system typical of more intensive beef production practices. Significantly greater concentrate, veterinary and other livestock costs led to significantly greater total variable costs, although gross margin remains significantly greater. In addition, with the exception of labour and contract costs, the upper performance group incurred significantly and substantially greater fixed costs of production. The higher variable and fixed costs of the upper performance group led to significantly greater total costs, however, the net margin for the upper performance group is significantly greater than the lower performance group by approximately £340/ha.

Examining the data by performance group for 2005 (Table 3.56), the pattern identified for 2004 is also present in 2005. Additionally, in 2005 the upper performance group has a significantly lower enterprise area and labour costs per hectare are significantly greater for this group. Overall performance, as measured by net margin, shows a significant difference of approximately £390/ha between the upper and lower performance groups in 2005.

Table 3.55: Fat Cattle from Dairy Bred Calves Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	38.03	29.87	26.05	24.10	34.24	25.28	
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TO	1202	1022	2382	1625	594	300	L<A,U;U>A
Conc	383	551	848	859	267	192	U>L,A
Crse.Fod	9	22	19	36	8	19	
V.Med	37	41	75	69	22	21	U>L,A
OLC	106	112	179	175	72	97	U>L,A
Seeds	10	15	9	17	17	19	
Fert	55	50	42	64	35	25	
Sprays	4	7	6	12	6	8	
OtherVC	10	24	21	47	6	9	
TVC	614	700	1199	1132	431	293	U>L,A
GM	589	480	1183	775	163	166	L<A,U;U>A
Lab	92	94	136	174	65	55	
Contract	55	140	120	309	44	33	
TMach	114	127	194	225	65	30	U>L,A
TOFC	86	66	156	108	45	20	L<A,U;U>A
TFCexclLand	347	252	607	415	219	98	L<A,U;U>A
Land	188	60	231	56	164	62	U>L,A
TFC	535	283	838	440	383	144	L<A,U;U>A
NFI	54	320	346	501	-220	196	L<A,U;U>A
FSLab	123	152	277	262	52	32	U>L,A
TC	1272	1019	2313	1604	866	434	U>L,A
NM	-69	300	69	525	-272	195	L<A,U
No. in sample	72		18		18		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.56: Fat Cattle from Dairy Bred Calves Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	40.45	35.20	19.93	18.27	49.25	28.34	U<L,A
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TO	696	828	1887	1814	411	462	U<L,A
Conc	303	523	728	1226	346	460	U>A
Crse.Fod	23	62	50	89	6	43	
V.Med	27	35	72	71	24	25	U>L,A
OLC	83	103	179	196	83	121	U>A
Seeds	10	11	13	11	12	15	
Fert	40	35	45	33	38	41	
Sprays	5	9	6	8	5	11	
OtherVC	8	10	13	13	9	12	U>A
TVC	500	657	1106	1452	523	627	U>A
GM	196	338	781	463	-111	214	L<A,U;U>A
Lab	93	92	196	177	61	79	U>L,A
Contract	42	53	66	77	33	51	
TMach	100	98	217	233	90	49	U>L,A
TOFC	59	25	75	27	48	26	U>L,A
TFCexclLand	295	182	555	344	232	136	U>L,A
Land	154	61	190	81	135	59	U>L,A
TFC	449	209	745	353	367	174	U>L,A
NFI	-253	271	36	296	-478	320	L<A,U;U>A
FSLab	100	152	206	317	85	121	U>A
TC	1048	920	2057	2019	975	807	U>L,A
NM	-352	283	-170	350	-563	365	L<A,U;U>A
No. in sample	80		20		20		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.22 Fat Cattle from Suckler Bred Weaned Calves and Stores

Presenting the results of fat cattle produced from suckler bred weaned calves and stores (Table 3.57) the most important factor influencing performance between 2004 and 2005 is the significant reduction in total output with the 2005 result being approximately £245/ha lower than for 2004. However, when set against the loss of subsidy, which in 2004 is estimated to be worth approximately £350/ha, the output from production alone in 2005 is in the order of £100/ha greater than for 2004. No significant difference in total variable costs is identified and the significant difference in gross margin thus flows from the difference in total output observed. Total other fixed costs and land costs are significantly lower in 2005 in comparison to 2004, however the overriding influence of the difference in output leads to the net margin being approximately £230/ha lower in 2005 than in 2004, comparable to the difference in total output between these two years.

Table 3.57: Fat Cattle from Suckler Bred Weaned Calves and Stores Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ha/Ent	35.77	35.02	31.75	29.81	1.42	
	£/ha	£/ha	£/ha	£/ha		
TO	805	822	561	1104	2.87	**
<i>of which subsidy#</i>	348		-			
Conc	197	394	182	481	0.39	
Crse.Fod	10	38	11	34	-0.01	
V.Med	21	29	18	43	0.94	
OLC	83	94	87	123	-0.46	
Seeds	4	7	5	9	-0.93	
Fert	29	24	27	28	0.93	
Sprays	4	6	4	9	0.49	
OtherVC	5	11	5	8	0.40	
TVC	354	516	338	642	0.31	
GM	451	406	223	558	5.35	***
Lab	62	78	72	210	-0.76	
Contract	37	46	32	33	1.65	
TMach	91	123	104	263	-0.73	
TOFC	79	73	68	46	2.05	**
TFCexcland	269	232	276	474	-0.21	
Land	153	65	134	56	3.78	***
TFC	423	267	409	484	0.39	
NFI	28	289	-186	301	8.34	***
FSLab	106	126	126	209	-1.32	
TC	883	780	874	1237	0.10	
NM	-78	302	-313	343	8.32	***
<i>No. in sample</i>	264		261			

* significant 95%; ** significant 99%; *** significant 99.9%. # see section 2.7 for explanation of subsidy calculation. *No. in sample* = Number of enterprise in sample

Table 3.58 presents the results for fat cattle produced from suckler bred weaned calves and stores for 2004 by performance groups. The upper performance group is characterised by a more intensive production system in comparison to the average data and the lower performance group. Significantly higher output of the upper performance group is accompanied by significantly greater concentrate, veterinary and other livestock costs, producing total variable costs that exceed those of the lower performance group by approximately £390/ha. Nevertheless, the substantial difference in output between these groups results in a significant difference at gross margin level of approximately £890/ha. A large proportion of this difference in gross margin is eroded by the significantly greater fixed costs incurred by the upper performance group, which at £660/ha represent a large increase over the £300/ha for the lower performance group. Significant differences in net margin are recorded however, with the upper performance group achieving a net margin approximately £450/ha greater than the lower performance group.

For 2005, the analysis by performance group (Table 3.59) indicates a pattern of production activities comparable with the differences identified in Table 3.46. The upper performance group is characterised by high input – high output systems, as noted for 2004. The main difference between these two years having previously been noted from Table 3.54, whereby the loss of subsidy led to an overall reduction in net margin achieved at enterprise level.

Table 3.58: Fat Cattle from Suckler Bred Weaned Calves and Stores Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	35.77	35.02	28.73	30.93	38.03	29.33	
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TO	805	822	1677	1515	404	214	L<A,U;U>A
Conc	197	394	408	807	143	150	U>L,A
Crse.Fod	10	38	20	72	4	10	
V.Med	21	29	37	52	16	20	U>L,A
OLC	83	94	141	175	64	54	U>L,A
Seeds	4	7	4	8	4	7	
Fert	29	24	35	28	28	25	
Sprays	4	6	3	6	3	6	
OtherVC	5	11	6	9	6	16	
TVC	354	516	655	1048	269	204	U>L,A
GM	451	406	1023	580	135	104	L<A,U;U>A
Lab	62	78	113	129	37	43	L<A,U;U>A
Contract	37	46	47	59	27	38	U>L
TMach	91	123	190	223	62	59	U>L,A
TOFC	79	73	137	123	51	39	L<A,U;U>A
TFCexcLand	269	232	487	407	177	113	L<A,U;U>A
Land	153	65	169	73	129	53	L<A,U
TFC	423	267	656	451	306	147	L<A,U;U>A
NFI	28	289	366	398	-170	165	L<A,U;U>A
FSLab	106	126	160	175	73	76	L<A,U;U>A
TC	883	780	1471	1490	648	344	L<A,U;U>A
NM	-78	302	206	429	-244	198	L<A,U;U>A
No. in sample	264		66		66		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.59: Fat Cattle from Suckler Bred Weaned Calves and Stores Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ha/Ent	31.75	29.81	25.71	26.95	33.97	33.12	
	£/ha	£/ha	£/ha	£/ha	£/ha	£/ha	
TO	561	1104	1264	2365	266	243	L<A,U;U>A
Conc	182	481	364	1022	161	191	U>A
Crse.Fod	11	34	20	54	10	32	
V.Med	18	43	36	91	13	15	U>L,A
OLC	87	123	133	230	93	93	U>A
Seeds	5	9	4	7	5	8	
Fert	27	28	34	34	27	29	
Sprays	4	9	3	5	6	13	
OtherVC	5	8	5	7	7	11	
TVC	338	642	599	1347	321	282	U>A
GM	223	558	665	1154	-55	100	L<A,U;U>A
Lab	72	210	156	460	36	47	U>L,A
Contract	32	33	42	38	24	31	U>L,A
TMach	104	263	204	587	47	38	U>L,A
TOFC	68	46	88	63	48	29	L<A,U;U>A
TFCexcLand	276	474	490	1037	155	92	L<A,U;U>A
Land	134	56	145	51	125	46	U>L
TFC	409	484	635	1043	280	102	L<A,U;U>A
NFI	-186	301	30	536	-335	167	L<A,U;U>A
FSLab	126	209	215	425	74	104	U>L,A
TC	874	1237	1449	2661	675	430	U>L,A
NM	-313	343	-185	656	-409	216	L<A,U;U>A
No. in sample	261		65		65		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

3.2.23 LFA Ewes

Table 3.60 presents the results of the LFA breeding ewe enterprises for 2004 and 2005. Examining the structure of production initially, the area allocated to each ewe is significantly greater in 2005 than 2004, representing a 28% increase per ewe. The policy change removing production linked subsidy has led to a significant reduction in total output from 2004 to 2005, with the estimated subsidy of £22/ewe accounting for nearly all of the reduction in output between these two years. Variable costs do not differ between 2004 and 2005, however the removable of enterprise subsidy has led to a significant reduction in gross margin. Machinery costs are significantly greater in 2005 which in part led to significant differences in total fixed costs and total costs. Net margin results show that, on average, these enterprises produced a negative return in both years; for 2005 the net margin of approximately minus £42/ewe flowing from increased costs in this year combined with the loss of the production linked subsidy.

Table 3.60: LFA Ewes Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ewes/Ent	428.93	408.63	373.90	360.77	1.27	
Area (ha/ewe)	0.14	0.07	0.18	0.10	-4.00	***
	£/ewe	£/ewe	£/ewe	£/ewe		
TO	80	23	55	18	10.43	***
<i>of which subsidy[#]</i>	22		-			
Conc	10	5	11	6	-0.69	
Crse.Fod	2	3	2	3	-0.64	
V.Med	4	2	4	2	0.24	
OLC	6	3	7	5	-0.27	
Seeds	0	1	0	0	1.15	
Fert	3	2	3	2	0.07	
Sprays	0	0	0	0	-0.99	
OtherVC	0	1	0	1	0.67	
TVC	27	10	27	11	-0.54	
GM	53	20	28	17	11.81	***
Lab	9	9	9	9	0.65	
Contract	2	2	2	2	-0.78	
TMach	11	8	15	7	-4.41	***
TOFC	7	3	8	5	-1.44	
TFCexcLand	30	12	34	14	-2.65	***
Land	15	7	15	8	-0.78	
TFC	45	16	49	18	-2.38	*
NFI	8	19	-22	20	13.38	***
FSLab	17	16	20	18	-1.67	
TC	89	26	97	28	-2.76	***
NM	-9	27	-42	28	10.41	***
<i>No. in sample</i>	152		164			

* significant 95%; ** significant 99%; *** significant 99.9%. # see section 2.7 for explanation of subsidy calculation. *No. in sample* = Number of enterprise in sample

Examining the output, costs and margins for LFA ewe enterprises in 2004 by performance group (Table 3.61) the upper performance group is characterised as, on average, a more intensive production system, utilising a smaller area per ewe, but achieving a significantly greater total output per ewe than the lower performance group; the upper performance group achieving an 88% increase in output over and above the lower performance group. Whilst the upper performance group incurs significantly lower coarse fodder costs, other livestock costs are recorded as significantly greater; no difference in total variable costs is recorded. The large difference in output produces a significantly greater gross

margin for the upper performance group. However, with the exception of land costs, the upper performance group incurred significantly greater fixed costs of production than the average and the lower performance groups, resulting in total costs being significantly greater than the lower performance group by £12/ewe. Nevertheless, the upper performance group retains a significant and substantially larger net margin than the lower performance group, with the magnitude of the difference equal to 40/ewe.

Table 3.62 demonstrates that whilst the broad theme of the variation in performance as identified in 2004 remains, the LFA ewe enterprise performance for 2005 also displays a number of differences to 2004. The more intensive production of the upper performance group, utilising a lower area per ewe and achieving a significantly greater output still holds in 2005. However, only coarse fodder differs significantly with respect to variable costs, and whilst not statistically significant, total variable costs for the upper performance group are marginally lower than for the lower performance group. The significantly greater gross margin of the upper performance group is eroded by the significantly greater total fixed costs, however the value of farmer and spouse labour per ewe in the upper performance group is significantly lower than for the average and lower performance groups, leading to total costs not being significantly different across the groups. The net margin of minus £24/ewe is significantly greater in the upper performance group, this result being £38/ewe greater than the net margin for the lower performance group, comparable with the 2004 data.

Table 3.61: LFA Ewes Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ewes/Ent	428.93	408.63	366.46	429.56	403.12	345.14	
Area (ha/ewe)	0.14	0.07	0.12	0.05	0.15	0.08	U<L,A
	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	
TO	80	23	113	26	60	15	L<A,U;U>A
Conc	10	5	10	5	9	4	
Crse.Fod	2	3	2	2	3	4	L>A,U
V.Med	4	2	4	2	4	3	
OLC	6	3	8	4	6	3	U>L,A
Seeds	0	1	0	0	1	1	
Fert	3	2	4	3	3	3	
Sprays	0	0	0	0	0	0	
OtherVC	0	1	0	0	1	2	
TVC	27	10	28	9	27	10	
GM	53	20	85	22	33	11	L<A,U;U>A
Lab	9	9	13	10	6	6	L<A,U;U>A
Contract	2	2	3	3	2	2	U>L,A
TMach	11	8	15	7	9	8	U>L,A
TOFC	7	3	9	4	7	3	U>L,A
TFCexcLand	30	12	40	15	24	10	L<A,U;U>A
Land	15	7	17	9	15	8	
TFC	45	16	57	21	39	15	L<A,U;U>A
NFI	8	19	28	13	-6	16	L<A,U;U>A
FSLab	17	16	14	11	20	18	
TC	89	26	99	27	86	25	U>L,A
NM	-9	27	14	20	-26	26	L<A,U;U>A
No. in sample	152		38		38		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.62: LFA Ewes Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ewes/Ent	373.90	360.77	400.92	453.37	351.58	258.48	
Area (ha/ewe)	0.18	0.10	0.16	0.05	0.23	0.13	L>A,U
	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	
TO	55	18	77	16	38	10	L<A,U;U>A
Conc	11	6	10	6	11	4	
Crse.Fod	2	3	1	1	4	4	L>A,U;U<A
V.Med	4	2	4	2	4	2	
OLC	7	5	7	4	6	8	
Seeds	0	0	0	0	0	0	
Fert	3	2	3	2	2	2	
Sprays	0	0	0	0	0	0	
OtherVC	0	1	0	0	0	1	
TVC	27	11	25	10	29	12	
GM	28	17	51	11	9	9	L<A,U;U>A
Lab	9	9	12	11	5	6	L<A,U;U>A
Contract	2	2	3	2	3	2	
TMach	15	7	18	8	14	7	U>L,A
TOFC	8	5	8	7	8	5	
TFCexcLand	34	14	42	18	30	12	U>L,A
Land	15	8	17	8	14	7	
TFC	49	18	59	21	43	17	U>L,A
NFI	-22	20	-8	21	-34	20	L<A,U;U>A
FSLab	20	18	16	15	28	20	L>A,U;U<A
TC	97	28	101	34	100	31	
NM	-42	28	-24	29	-62	29	L<A,U;U>A
No. in sample	164		41		41		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. *No. in sample* = Number of enterprise in sample

3.2.24 Lowland Ewes

Table 3.63 presents result for lowland breeding ewe enterprises in 2004 and 2005. Production linked subsidy removal, estimated to be worth approximately £17/ewe in 2004, accounts for the significant reduction in total output from 2004 to 2005. Variable costs do not differ significantly between years, producing a significant difference in gross margin flowing from the removal of this enterprise subsidy. A notable difference in fixed cost is recorded; total machinery costs have increased by approximately £5/ewe from 2004 to 2005 leading to significantly greater total fixed costs and total costs. It is instructive to note that whilst machinery costs have increased from 2004 to 2005, labour costs, also derived from the net margin apportionment methodology, are not significantly different between the two years. The combination of subsidy removal and increased costs for 2005 has led to a significant reduction in net margin for 2005 over 2004. Whilst both years produced negative net margins, the data in Table 3.63 indicate that in 2005 the vast majority of lowland ewe enterprises returned negative net margins.

Table 3.63: Lowland Ewes Output, Costs and Margins

Measure	2004		2005		t	Sig
	Mean	SD	Mean	SD		
Ewes/Ent	236.17	266.31	237.86	265.95	-0.08	
Area (ha/ewe)	0.14	0.08	0.16	0.15	-1.71	
	£/ewe	£/ewe	£/ewe	£/ewe		
TO	78	32	62	24	7.24	***
<i>of which subsidy#</i>	17		-			
Conc	10	8	11	9	-1.14	
Crse.Fod	1	2	1	3	-1.12	
V.Med	4	3	5	3	-1.78	
OLC	8	5	8	5	-1.07	
Seeds	1	1	1	1	-0.26	
Fert	4	4	4	4	1.07	
Sprays	1	2	1	1	0.04	
OtherVC	1	1	1	1	-0.37	
TVC	29	15	30	16	-1.25	
GM	49	27	31	22	9.09	***
Lab	8	9	9	9	-0.73	
Contract	3	4	3	4	1.06	
TMach	9	8	14	9	-7.25	***
TOFC	9	5	11	7	-3.67	***
TFCexcLand	30	17	37	20	-4.68	***
Land	21	14	20	23	0.88	
TFC	51	27	56	33	-2.29	
NFI	-2	31	-25	34	9.06	***
FSLab	19	18	21	21	-1.54	
TC	98	41	108	46	-2.73	***
NM	-20	35	-46	39	8.82	***
<i>No. in sample</i>	321		315			

* significant 95%; ** significant 99%; *** significant 99.9%. # see section 2.7 for explanation of subsidy calculation. *No. in sample* = Number of enterprise in sample

Table 3.64 presents results by performance groups for lowland ewe enterprises for 2004. The upper performance group achieved significantly greater total output than the lower performance group, recording output more than double that of the lower performance group. In respect to variable costs only other livestock costs are significantly different across the groups. The large difference in total output produces significant differences in gross margin results. Examining fixed costs, only labour and contract costs are not significantly different, with the upper performance group incurring greater fixed costs at each cost category, and in total. The value of farmer and spouse labour is also significantly different between the groups. The net margin of the upper performance group is significantly greater than that for the average and lower performance groups.

The performance data for 2005 (Table 3.65) indicates that the broad pattern noted for 2004 remains in place, but equally some important differences have emerged. The upper performance group has a significantly lower average number of ewes per enterprise whilst the lower performance group incurs significantly greater concentrate, coarse fodder, seed and spray costs, resulting in total variable cost for the lower performance group being significantly greater than for the average and upper performance groups. Gross margin remains significantly different, with the upper performance group achieving a gross margin £57/ewe greater than the lower performance group. However, the total fixed cost difference noted in 2004 remains; labour costs are significantly different in 2005, whilst land costs in 2005 are noted as not significantly different. Total costs differ significantly across the groups. The net margin of the lower performance group is significantly lower than that for the average and upper performance groups, however no significant difference between the upper performance group and the average group exists at net margin level.

Table 3.64: Lowland Ewes Output, Costs and Margins (2004)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ewes/Ent	236.17	266.31	197.43	297.45	204.69	221.59	
Area (ha/ewe)	0.14	0.08	0.16	0.11	0.15	0.07	
	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	
TO	78	32	114	41	50	16	L<A,U;U>A
Conc	10	8	9	9	11	7	
Crse.Fod	1	2	1	3	1	2	
V.Med	4	3	4	3	5	3	
OLC	8	5	10	8	7	5	U>L,A
Seeds	1	1	1	1	1	1	
Fert	4	4	3	4	5	7	
Sprays	1	2	1	1	1	3	
OtherVC	1	1	0	1	1	1	
TVC	29	15	30	20	31	17	
GM	49	27	85	27	20	15	L<A,U;U>A
Lab	8	9	10	12	8	8	
Contract	3	4	4	6	4	3	
TMach	9	8	12	11	7	6	L<A,U;U>L
TOFC	9	5	11	7	8	4	U>L,A
TFCexcLand	30	17	37	25	26	14	U>L,A
Land	21	14	26	23	20	10	U>L,A
TFC	51	27	63	44	46	20	U>L,A
NFI	-2	31	21	39	-26	24	L<A,U;U>A
FSLab	19	18	25	24	16	17	U>L,A
TC	98	41	118	63	92	32	U>L,A
NM	-20	35	-4	45	-42	30	L<A,U;U>A
No. in sample	321		81		81		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

Table 3.65: Lowland Ewes Output, Costs and Margins (2005)

Measure	All		Upper		Lower		Sig
	Mean	SD	Mean	SD	Mean	SD	
Ewes/Ent	237.86	265.95	167.21	149.43	199.04	220.04	U<A
Area (ha/ewe)	0.16	0.15	0.17	0.29	0.16	0.08	
	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	£/ewe	
TO	62	24	89	30	41	14	L<A,U;U>A
Conc	11	9	10	8	15	12	L>A,U
Crse.Fod	1	3	1	2	2	5	L>A,U
V.Med	5	3	4	3	5	3	
OLC	8	5	9	7	9	6	
Seeds	1	1	0	1	1	2	L>A,U
Fert	4	4	3	4	4	4	
Sprays	1	1	0	0	1	2	L>A,U;U<A
OtherVC	1	1	1	1	1	2	
TVC	30	16	30	18	38	18	L>A,U
GM	31	22	59	18	2	15	L<A,U;U>A
Lab	9	9	11	13	5	6	L<A,U;U>A
Contract	3	4	4	5	3	3	
TMach	14	9	20	14	10	6	L<A,U;U>A
TOFC	11	7	14	11	10	6	U>L,A
TFCexcLand	37	20	49	30	27	13	L<A,U;U>A
Land	20	23	21	17	20	43	
TFC	56	33	70	42	48	45	U>L,A
NFI	-25	34	-11	35	-45	48	L<A,U;U>A
FSLab	21	21	31	31	18	19	U>L,A
TC	108	46	131	66	104	51	U>L,A
NM	-46	39	-42	49	-63	49	L<A,U
No. in sample	315		79		79		

Significant at 95% or above where noted; A = All; U = Upper; L = Lower; see section 2.6. No. in sample = Number of enterprise in sample

4. Discussion

4.1 Introduction

This chapter considers the results presented in Chapter 3, specifically focusing upon the broad findings of the results from the enterprises examined in relation to changes from 2004/05 to 2005/06, and also in relation to variation in performance groups. To aid discussion, the enterprises considered below are grouped into five crop and six livestock broad categories.

4.2 Cereals: Spring and Winter Barley, Winter Wheat

For cereal crops, the major difference in performance between 2004/05 and 2005/06 is the lower output resulting from the removal of AAPs. This impacts directly upon gross and net margins and is clearly the most dominant factor affecting performance in 2005/06. It is informative to note that no difference in output excluding AAP is observed for cereal crops between 2004/05 and 2005/06. Some differences are identified between these two years with respect to lower seed cost (spring barley), lower fuel for crop drying costs (winter wheat) and higher fertiliser costs (winter wheat) in 2005/06. These differences are arguably reflecting the different market and production conditions between the years. Examining fixed costs, differences are found in machinery, other fixed costs and land costs. For winter barley (winter wheat) machinery costs were lower (higher) in 2005/06. Whilst these differences exist, it is argued that, because the labour cost (also derived from the apportionment approach) does not differ between the years, the differences in machinery cost may not be due to the apportionment methodology. Nevertheless, comparing the fixed costs and net margins across these enterprises indicates that labour costs in barley production far exceed those attributed to wheat production. The similarity in the production of these crops (with spring barley requiring lower labour input, all things being equal) indicates that the apportionment approach led to higher labour costs being apportioned to barley enterprises than would be expected. This observation was also noted by Wilson and Robertson (2006a) in their comparison of FBS and SS data and led them to propose revised input-output coefficients as discussed further in Chapter 5.

The analysis by performance groups shows that the upper performance group achieved significantly greater yields (and often substantial price premiums), leading to greater total output. With the exception of spring barley in 2004/05, the lower performance groups also incurred higher total variable costs despite their lower total output. The upper performance groups are occasionally characterised by incurring higher fixed costs of production (winter barley in both years, winter wheat in 2004/05). The over-riding message from the analysis by performance groups being that the upper performance group achieved higher yields, prices, and hence output, while incurring lower variable costs, but often associated with higher fixed costs. The difference in net margin performance between the upper and lower performance groups is significant and substantial.

4.3 Break Crops: Beans, Peas and Oilseed Rape (Spring and Winter)

Comparisons between the accounting years 2004/05 and 2005/06 show significant differences in a number of key measures for these break crops. The crucial difference in performance being the substantial reduction in, or removal

of, AAP for these enterprises. Substantial reductions in gross and net margin follow directly from this subsidy reduction / removal. Whilst some differences in variable costs are noted between the two years of interest, there is no indication of a broad change in production practices from 2004/05 to 2005/06. Examining fixed costs, some differences are noted between the two years, with differences in machinery costs highlighted for beans and peas, whilst for winter oilseed rape, significant increases in labour, machinery and other fixed costs were identified in 2005/06; land costs were lower. The observation on winter oilseed rape fixed costs suggests that the methodology underlying the apportionment of fixed costs is responsible for the change in recorded fixed costs between the two years; arguably the lower costs observed in 2004/05 are inappropriate (when comparing costs for winter wheat for example), and hence the costs attributed for 2005/06 are arguably more appropriate than those in the preceding year.

In relation to examining the differences in profitability groups for break crops, the upper performance groups typically achieve higher crop output (mainly from higher yields, but also higher output prices), incur lower variable costs, but higher fixed costs. The lower variable costs do not offset the higher fixed costs, and hence the upper performance groups have higher total costs, though not always significantly so. Nevertheless, the increased output achieved leaves the upper performance groups with significantly greater net margins.

4.4 Root Crops: Potatoes and Sugar Beet

The significant difference identified in total output between 2004/05 and 2005/06 for ware potatoes results from an increase in output prices, as yields between the years were not significantly different. No differences in variable costs were identified, which led to 2005/06 recording a significantly greater gross margin. Variation exists in fixed costs between the years, with 2005/06 bringing changes to labour costs (higher), total other fixed costs (lower), land costs (lower) and the value of farmer and spouse labour (higher). However, no difference in total costs ensured that the higher prices in 2005/06 resulted in higher net margins. Differences between these two years for sugar beet production were confined to lower machinery, other fixed costs and land costs, whilst the value of farmer and spouse labour increased. Net margins were very similar, although negative in both years, but with large variation around these average returns.

The major differences in performance between the upper and lower performance groups for potatoes is that the upper performance group achieved higher yields, higher prices, incurred comparable variable costs, but incurred significantly, and substantially, greater fixed costs. Despite considerably greater fixed costs, the greater output of the upper performance group led to significant and substantial differences at net margin level. Performance group analysis for sugar beet demonstrates a similar pattern to potatoes. For sugar beet, the upper performance group grew a larger crop area in addition to obtaining higher yields, and whilst this group incurred lower total variable costs, this difference is only significant in 2004/05. However, the upper performance group incurred higher total fixed costs, although overall total costs are not significantly different, leading to net margins that are significantly greater for the upper performance group. Note however, that in both years this leaves even the upper performance group returning an average negative net margin, albeit that wide variation exists around these averages. Nonetheless, with data suggesting that the vast majority of sugar beet enterprises make a loss (when sugar beet was regarded as a relatively profitable crop) is perhaps indicative that an over apportionment of fixed costs to sugar beet enterprises may be occurring. A large proportion of

sugar beet field work is undertaken by contractors, yet despite this practice, substantial own labour and machinery is attributed to this enterprise.

4.5 Fresh Vegetables: Field Scale, Market Garden and Protected

For field scale and market garden vegetable crop enterprises, no significant differences were observed in financial performance and costs between 2004/05 and 2005/06. However, it is argued that this lack of statistical significance is due in part to the large variation that exists within these individual enterprise categories. The wide range of individual products that are grouped within these categories, together with the small or modest sample sizes, does not lend itself easily to comparative analysis of this nature. However, when examining protected crops, whereby similar arguments hold, significant differences are observed, with 2005/06 representing a lower input – lower output system than 2004/05. These significant differences are however, argued to be due, to a large extent, to a difference in the sample, given the increase in sample size at enterprise margin level (from 29 to 38) and also the observed difference in the balance of outputs and costs.

Profitability group analysis was only possible for field scale vegetable production. For both years the pattern of the upper performance group characterised as a higher input – higher output system, is very clear with significant and substantial differences in costs and returns noted.

4.6 Fruit: Soft and Top

The number of enterprises for which data exists at gross and net margin level for soft fruit enterprises is statistically small (less than 30). The consequence of this being that whilst substantial differences exist in the output, costs and margins between 2004/05 and 2005/06, no significant differences are identified. In comparison to 2004/05, 2005/06 represents a higher input – higher output system, on average. Examining top fruit enterprises, the number of observations are sufficient to permit analysis by performance groups in addition to analysis between years. Yield is significantly greater in 2005/06, which leads to a significant increase in gross margin, however no significant difference in net margin is identified.

Performance group analysis for top fruit shows that in both 2004/05 and 2005/06, the upper performance group represents a considerably more intensive production system than those in the lower performance group. However, even for the upper performance group, average negative net margins were recorded.

4.7 Poultry: Broilers and Laying Hens

The small sample size for broiler enterprises did not allow analysis by performance groups to be undertaken. However, comparing 2004/05 with 2005/06 broiler production, no significant differences are observed between the two years, and the results of the two years are very comparable as would perhaps be expected from an intensive and controlled production system. An interesting observation is that the standard deviations surrounding the means for total output, gross margin and total costs in 2005/06 are considerably larger than the previous year, indicating that whilst average performance is comparable, variation around these average results was higher in 2005/06. Turning to laying

hen enterprises, only one factor was significantly different between the two years presented, with total other fixed costs being higher in 2005/06; whilst other numerical differences do exist, the results are broadly very comparable between the two years.

Examining output, costs and margins by performance groups for laying hens demonstrates that the upper performance group were typically smaller flocks, producing higher output values per bird, from higher cost structures. As noted in Chapter 3, this is indicative of organic / free range systems which, when measured on a per bird basis (as in this analysis), are likely to return greater margins per bird than more intensive systems.

4.8 Pigs

The intensive nature of pig production systems arguably means that the physical input and outputs involved are less variable between years than for grazing livestock production. Table 3.42 above indicates that the costs and returns to breeder-finisher pig units did not differ significantly between the two years presented. However, variation exists between performance groups for this enterprise category, with the upper performance groups in both 2004/05 and 2005/06 being typified by larger herds achieving significantly greater output, gross margins and net margins in both years when compared to the average and lower performance groups. Whilst costs differences between the two years, with respect to performance group analysis, are noted above, in 2004/05 no significant differences are observed for total variable costs and total costs between the groups. In 2005/06 this pattern is not maintained, with the upper performance group incurring significantly greater total variable, total fixed, and total costs than the lower performance group.

4.9 Dairy Cows

Tables 3.45 to 3.47 inclusive detail the results for dairy production. As noted in Chapter 3, a combination of marginally lower output and marginally higher total variable costs in 2005/06 led to a significant fall in gross margin in this year. Whilst fixed cost differences were noted, and resulted in a significant increase in 2005/06 for total costs, there is no evidence to suggest that this cost difference reflects anything other than the true costs incurred in this sector in each year, i.e. it is argued that the fixed cost apportionment methodology is not responsible for these observed differences. This view is reinforced by the not significantly different labour costs between the two years.

Examining the performance groups, the clear theme identified was that the upper performance group in each year had larger herds, achieved higher output per cow, and operated more intensive production systems, than the average and lower performance groups. The overall downward financial performance noted in 2005/06 has impacted across profitability groups with each performance group returning a numerically lower net margin in 2005/06 than for 2004/05.

4.10 Suckler Cows: LFA and Lowland

The changes to the CAP introduced in January 2005, resulting in removal or reduction of production-linked subsidies, impacted upon beef and sheep enterprises in addition to combinable crop enterprises. The main change in

suckler cow enterprise performance between 2004/05 and 2005/06 is thus due to the removal of production-linked subsidies, leading to significant reductions in total output, gross margins and net margins for LFA and lowland suckler herds in 2005/06. Whilst it has not been possible to disaggregate the value of subsidy for these enterprises, it is proposed that these large reductions in output are largely accounted for by the subsidy removal, as identified for other beef and sheep enterprises above. Total other fixed costs have increased from 2004/05 to 2005/06 for both LFA and lowland herds; it is not clear if this is a function of the apportionment calculation for fixed costs, or representing a real-terms increase. The lack of a significant difference in machinery and labour costs suggests that the increase in other fixed costs represents a real increase in these costs.

Analysis by performance groups for suckler herds demonstrates that, comparing the upper and lower performance groups, the upper performance group achieved higher output, incurred lower variable costs, but higher fixed costs, and returned significantly greater net margins. However, despite these very striking differences between the upper and lower performance categories, even the upper performance groups failed to achieve a positive net margin on average; this despite the presence of production-linked subsidies in 2004/05. Whilst such negative returns could be argued to represent an over apportionment of fixed costs to these enterprises, the costs per cow for the individual cost categories do not appear to be unrealistic. Hence, in summary, these enterprise groups returned negative net margins, and considerably large negative net margins in the absence of subsidies.

4.11 Fat Cattle: Dairy Bred Calves, Suckler Bred Weaned Calves and Stores

As with the previous section relating to suckler production the changes to the CAP impacted directly upon fat cattle enterprises. Examining fat cattle produced from dairy bred calves, the significant reduction in total output in 2005/06 is, in the main part, explained by the removal of beef subsidy payments. However, for this group a fall in the value of actual production also accompanied the subsidy removal. This reduced value of actual production was also accompanied by some cost reductions; however total costs were not significantly different between the two years, albeit that in 2005/06 total costs were more than £200/ha lower than in the previous year. The analysis across years for beef produced from suckler bred weaned calves and stores demonstrates that whilst the subsidy removal accounts for a major part of the fall in total output, the value attributed to actual beef production (i.e. excluding subsidy) for this group increased from 2004/05 to 2005/06. Whilst fixed cost differences exist for total other fixed costs and land, total costs are not significantly different and are very similar numerically. Overall net margins for beef production in 2005/06 were significantly lower than in 2004/05, as anticipated given the subsidy removal.

Analysis by performance groups for the dairy bred calves enterprises demonstrates a considerable difference in production systems, with the per hectare analysis showing that the upper performance group operated more intensive systems than the lower performance group. Whilst this arguably makes comparisons between these performance groups less valid (as the production systems may be wide ranging), it is instructive to note that in 2004/05, prior to the subsidy removal, the upper performance group returned a positive net margin per hectare, in contrast to the large negative net margin of the lower performance group. Performance group analysis for suckler bred weaned calves and stores demonstrates a similar set of characteristics, with the upper performance group typified by a high input – high output per hectare system.

Note that once again, only the upper performance group in 2004/05 returned a positive net margin.

4.12 Breeding Ewes: LFA and Lowland

Significantly lower output was recorded for both LFA and lowland breeding ewes in 2005/06 in comparison to 2004/05, resulting directly from the removal of subsidy payments in 2005. For both LFA and lowland ewe enterprises, this impacted directly at gross margin level, with no difference being identified in variable costs between the two years. Whilst there are fixed cost increases in 2005/06 for both LFA and lowland ewes, leading to higher total costs and lower net margins, there is no evidence to suggest that the cost differences are a direct result of the apportionment methodology, given that labour costs do not differ between the two years.

Examining returns by performance groups for LFA ewes, the upper performance group achieved significantly greater output from a more intensive (with respect to land use per ewe) system, but also incurred higher fixed costs; nevertheless the upper performance group achieved net margins approximately £40/ewe greater than the lower performance group. For lowland ewes, analysis by performance group also shows that the upper performance group achieved higher output, but with either similar (2004/05) or lower (2005/06) total variable costs. However, in both years the upper performance group incurred significantly greater fixed, and total, costs. The average negative net margins for all performance groups, both in 2004/05 and 2005/06, demonstrates the unprofitability in lowland production systems, even prior to the removal of subsidies.

4.13 Summary

The above sections highlight three main aspects: changes in enterprise margins between 2004/05 and 2005/06; variation in enterprise performance as identified from the performance group analysis; and methodological aspects relating to the apportionment of fixed costs.

Changes in Enterprise Margins between the two Years

Considering changes in enterprise margins between the two years presented, the most important impact relates to the removal of arable area payments and livestock headage payments via CAP reform. For cereals, pulses, oilseed rape, beef and sheep enterprises, the changes to the CAP have led to significant reductions in output, gross margin and net margin across all enterprises. The data presented herein does not however indicate any wide spread structural change in the production of these enterprises, with variable and fixed costs, on the whole, being similar between the two years presented. The loss of headage payments and area payments has led to the majority of these enterprises returning negative net margins in 2005/06.

Note however, that under the methodology used, the cost of land (i.e. actual or imputed rental value) attributed to these enterprises did not substantially change between 2004/05 and 2005/06; it could be argued that the rental value attributed to the enterprise should be lower in 2005/06 than in 2004/05, reflecting the absence of coupled support payments in 2005/06. In 2004/05 all revenue (including support payments) derived from land was linked to a

particular enterprise and the rent/rental value attributed to the enterprise reflected this. In 2005/06, revenue derived from land is, arguably, attributable to enterprise production *and* to receiving the Single Farm Payment. However, within the FBS methodology for 2005/06, land costs were not attributed to the Single Farm Payment, but were allocated to individual enterprises as in 2004/05. Had the cost of land in 2005/06 been included as a representation of the productive ability of the land alone (in contrast to holding land upon which to receive the Single Farm Payment), then total enterprise costs would be lower for the enterprise noted above. This would result in net margins in 2005/06 being considerably greater than presented above, albeit that on average, even allocating a zero cost for land would produce negative net margins for these enterprises.

Other notable differences in profitability between the two years are: (i) the higher output price for potatoes (in 2005/06) leading to greater output; (ii) lower gross margins in dairy production from a combination of lower total output and greater total variable costs (2005/06); (iii) the wide variation in performance between the two years for vegetable and fruit production, with this latter aspect attributable, in part, to the small and modest sample sizes in these enterprises and possible changes in the range of individual crops included in these broad enterprise categories.

Differences between Performance Groups

Examining the data by performance groups (defined by gross margins as detailed in Chapter 2), the characteristics of the upper performance groups in all enterprise categories define the upper performance group as higher input – higher output production systems, when examined in the units defined above (e.g. per hectare or per animal). This holds universally across all the enterprises considered. Whilst this suggests that the upper performance group are generally more intensive in their production, there is one example of an enterprise where the actual production process from the higher performers is less intensive; this enterprise category is laying hens whereby the higher output system (per bird) is indicative of organic / free range enterprises in the upper performance group. For some enterprises the upper performance group incurred lower variable costs (e.g. beans, winter OSR, winter wheat, suckler herds), whilst in other examples the upper performance group incurred higher variable costs (e.g. dairy, laying hens, breeder-finisher pig units [in 2005/06 only]). For a number of enterprises there was no substantial difference in variable costs by performance group. In relation to fixed costs, the upper performance group generally incurred higher fixed costs when compared with the average and lower performance group. Despite generally higher fixed costs, the upper performance groups, with their greater output and gross margins, returned net margins that were, in general, significantly greater than the average and lower performance groups.

Methodological Issues

With respect to methodological aspects relating to the apportionment of fixed cost categories, leading to the production of net margins, some issues are highlighted in the above discussion. For winter OSR, the results presented indicate that for labour, machinery and total other fixed costs, there has been a significant increase in costs in 2005/06 over the previous year's levels. It is argued that this increase is unlikely to represent (in entirety) a real increase in these costs from 2004/05, because it is also the case that the costs attributed, or recorded, to these cost categories for 2004/05 were arguably too low. Examining the costs for barley production (spring and winter) a clear pattern is present that, with respect to fixed costs, and particularly labour costs, these are substantially greater than

those attributed to a comparable crop (winter wheat). This indicates that the apportionment methodology is attributing larger costs to barley enterprises (and consequently lower costs to other enterprises on these farms) than should be the case. This finding is reinforced by Wilson and Robertson (2006a) in their analysis of combinable crop data from FBS and Special Study (SS) sources.

Other Observations

A further issue that the above results highlight is the negative returns (i.e. negative net margin) to sugar beet production in both 2004/05 and 2005/06. Whilst it is not possible to assess the extent to which these net results do, or do not, represent the true economic picture of production for this enterprise, the overall negative returns to a crop generally considered to be profitable requires further comment. Sugar beet production, in contrast to other arable crops (possibly with the exception of potatoes) increasingly relies upon contract services as a major part of the production process, and hence costs. Thus for sugar beet, the direct contract costs are correctly allocated to the enterprise, and in addition, own farm labour and machinery costs are also attributed to the enterprise. With the large reliance on contract services for this enterprise, it is argued that an element of double counting may occur, whereby the enterprise incurs both on farm cost of labour and machinery in addition to contract service costs; in practice, some of the labour and machinery costs for this enterprise will be offset by the cost of contract services.

Relationship with other Recent Research

The results presented in Chapter 3, and the discussion above, has utilised raw data from FBS enterprise gross and net margins to compare performance at enterprise level both across years and within years by performance group analysis. This approach contrasts with previous research (Wilson and Robertson 2006a; 2006b) whereby comparison was made between FBS and SS data, and in undertaking these earlier analyses the authors necessarily constructed data sets, and cost and revenue categories, that were broadly comparable between the two data sources. Hence, the results presented above are not directly comparable with those from Wilson and Robertson (2006a; 2006b) as the purpose of these research programmes was different to this current study. However, the above research has highlighted a number of issues that reinforce the findings of previous work and inform gross and net margin methodology within the FBS, and how this methodology can be improved to ensure further the robustness of enterprise level data from FBS sources. Chapter 5 presents a discussion of these developments in light of previous research and the findings presented herein.

5. FBS Developments and Conclusions

5.1 Introduction

Chapter 1 established the background to this research and outlined the approach taken in the FBS gross and net margin methodologies, together with an outline of research findings comparing FBS and SS data sources. One of the key aims of this report is to present the key findings from these previous research programmes, together with findings from this work, in order to explain the methodological developments that have been established within the FBS. It is important to recognise that these methodological developments not only build upon the rigorous approach adopted at the outset of the collation of net margins from FBS data, but also are informed by analysis of FBS enterprise data collected thus far.

5.2 FBS Developments

Chapter 1 briefly summarised the conclusions of three studies (Wilson and Robertson, 2006a [combinable crops]; 2006b [livestock enterprises]; Wilson, 2006 [potatoes and sugar beet]) noting that whilst the methodology underlying the apportionment of fixed costs in the FBS was appropriate, the coefficients used within the methodology led to inappropriate apportionment of labour and machinery costs; additionally recommendations were made in relation to allocation of labour and machinery costs in the presence of enterprise specific contract costs.

The main finding from Wilson and Robertson (2006a) was that the fixed costs for barley from FBS data were not comparable with SS costs, nor with costs for wheat from either FBS or SS data. Hence, Wilson and Robertson's main recommendation was that new input-output coefficients be used for barley enterprises in the calculation of labour and machinery costs; these recommended coefficients being based upon the coefficients for wheat, but calibrating the coefficients by the difference in the value of output for spring and winter barley crops, relative to wheat, to derive more appropriate input-output coefficients for barley enterprises. Moreover, a range of other less popular combinable crops (e.g. triticale, oats) previously relied upon the input-output coefficients for barley, and hence recommendations were made to apply the proposed coefficients for winter and spring barley to these other cereal crops. Other recommendations were also proposed, including improving the recording of fuel for crop drying within the FBS enterprise data.

Wilson and Robertson (2006b) examined fixed cost data relating to milk production, lowland beef, pigs, eggs and broilers, paying particular attention to labour and machinery costs. They concluded that whilst, for a number of costs across the enterprises, there was broad comparability between FBS and SS sources, the results from the FBS data were, to a considerable extent, derived from the large number of enterprises within each data set that were either specialist farms (e.g. had only one enterprise on the farm), or where the main enterprise dominated the overall farm business. In these cases the apportionment methodology plays a considerably lower part in fixed costs apportionment to individual enterprises, hence resulting in a number of cases where broad comparability existed. However, when Wilson and Robertson (2006b) examined the input-output coefficients derived *from* both the FBS and SS

data sources, they concluded that these coefficients were not comparable with those used *within* the FBS apportionment methodology. Wilson and Robertson thus recommended a number of revised coefficients for use within the FBS, based upon the coefficients estimated from the work, drawing upon both FBS and SS sources. In addition to the enterprises considered within this study, Wilson and Robertson proposed a number of coefficients appropriate to other livestock enterprises, in line with their recommendations for those enterprises at the centre of their study. Further recommendations from this work included more clearly defined recording of enterprise output on farms where, for example, multiple beef enterprises (e.g. suckler / finisher units) exist, and the use of appropriate animal denominators within Section M of the FBS spreadsheet.

The two studies by Wilson and Robertson, and the recommendations from these studies, considered the main combinable crop enterprises together with the main livestock enterprises. Whilst these enterprises together account for a considerable amount of UK agriculture, main stream root crop enterprises, namely potatoes and sugar beet, were not examined in these studies. To address this issue, Wilson (2006) produced a note examining labour, machinery and contract costs and associated input-output coefficients in sugar beet and potato production, drawing upon data from previous studies pertaining to data on these two enterprises. This note concluded that revised coefficients for these two enterprises were required. Following this note and discussion, it was concluded that a further issue, relating to attributing labour and machinery costs to an enterprise in the presence of contract costs, required attention. Subsequent methodological developments led to a recommendation to change the methodology to more appropriately capture the combination of labour, contract and machinery costs at enterprise level; such issues are crucial for enterprises heavily dependent upon contract services, such as sugar beet.

The recommendations flowing from Wilson and Robertson (2006a; 2006b), Wilson (2006) and the subsequent proposal on labour, contract and machinery cost allocation, were presented at technical working group meetings of Defra and members of *Rural Business Research* who undertake the FBS on behalf of Defra. Following these meetings, it was agreed that the recommendations relating to the revision of coefficients (Wilson and Robertson 2006a; 2006b; Wilson, 2006) should be incorporated into the FBS methodology for the 2006/07 year together with the recommendations on recording fuel for crop drying, the use of appropriate denominators in Section M and appropriate methodologies for capturing the combination of labour, contract and machinery costs.

In summary, the methodology used within the FBS to produce net margins has been concluded to be a robust mechanism for the apportionment of fixed costs to individual enterprises. However, within this methodology a number of the coefficients used were found to be inappropriate, and research comparing FBS and SS data was used to produce improved coefficients, applicable for the accounting year 2006/07 onwards, together with further recommendations for data collection, analysis and recording procedures. These developments directly address the main issues highlighted in this research: more appropriate input-output coefficients relating to combinable crop enterprises have been put in place; the methodology for the allocation of the combination of labour, machinery and contract costs has been improved; other recommendations, from previous research, have been incorporated in respect to cost apportionment in livestock enterprises, collection of data on fuel for crop drying and appropriate animal denominators in Section M.

These methodological developments, made possible by the presence of FBS gross and net margin data, thus seek to produce improved and more robust enterprise

net margin data than was possible for 2004/05 and 2005/06. It should be noted that whilst these developments seek to improve the robustness of the net margin data for 2006/07 onwards, the gross margin data presented for 2004/05 and 2005/06 represents the most comprehensive and robust data on enterprise performance for England ever collected and analysed over a period of two years and presented within one report. Moreover, this data relates to two years during which the most significant change to agricultural policy for decades has been witnessed. As such the data presented above, whilst providing evidence of further refinements required to the FBS enterprise methodologies in relation to net margin performance, are of particular value and interest at gross margin level. For 2006/07 onwards it is argued that the FBS gross and net margin data, given the methodological developments outlined, will provide the most comprehensive set of enterprise level data ever collected for England. Such data will be a powerful analytical resource for examining performance both across, and within, enterprises.

5.3 Conclusions

This report aimed to compare and analyse gross and net margin data collected from the 2004/05 and 2005/06 Farm Business Surveys with a view to highlighting the range in economic performance within enterprise categories and across the two years of interest, whilst highlighting outputs, costs and margins that were unrealistically high or low, and additionally to explain the methodological developments that have occurred in the FBS. To achieve these aims the report considered 24 enterprise categories for England, covering a wide range of many of the major enterprises.

The findings highlighted the major impact of the reduction in, or removal of, enterprise specific subsidies in January 2005, and additionally noted that on the evidence presented, no change in cost structure occurred in response to this major change in enterprise output. For the enterprises where reductions or removal of subsidy payments occurred, this resulted in the vast majority of the individual enterprises returning negative net margins. With respect to analysis by performance groups, the results show that the upper performance group, when examined on a per hectare or per animal basis, consistently represent a higher input, higher output, economic production process than the average and lower performance groups. Accompanying this difference in production pattern, the upper performance groups (as defined by gross margin) achieved significantly and substantially greater net margins. Methodological aspects have also been highlighted in the above, largely in relation to the apportionment of fixed costs. Building upon previous research programmes, the input-output coefficients underlying the FBS methodology for 2006/07 onwards, have been revised, together with a number of further recommendations.

The gross margin data presented above brings together, in one report, the most comprehensive analysis of enterprise data for England ever produced. Moreover, this data covers two years during which the most significant change to agricultural policy for decades has been witnessed. The net margin data presented above provides an indication of enterprise profitability for a range of the major enterprises found in England. Whilst methodological improvements will help to ensure that the robustness of the net margin data for 2006/07 onwards is improved, the net margin data for 2004/05 and 2005/06 provide a very clear indication of the broad profitability in these enterprises, whilst noting the caveats detailed for a small number of enterprises where fixed costs appear to be inappropriate for that production process.

The gross and net margin data produced from the FBS for 2006/07 onwards will provide the most comprehensive set of enterprise level data ever collected for England. These data will be of considerable value to farmers, advisors, researchers, government, and policy makers in detailing the true economic performance of enterprises, both in aggregate and across performance groups and geographical regions.

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