

Contracting on English farms: evidence from existing surveys

Defra Agricultural Change and Environment Observatory Research Report No. 35
October 2014

Observatory contact: Steve Langton (steve.langton@defra.gsi.gov.uk)

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Summary

This report draws on evidence from the Farm Business Survey (FBS) and the June Agricultural Census. The main conclusions are:

- FBS data suggest that most farms make some use of agricultural contractors, although rates of usage are lower for poultry and horticultural farms. June data suggests a somewhat lower rate of farms using contractors, particularly for pig farms; some of this difference may relate to the different populations and definitions.
- Nevertheless, June data shows that contract labour makes up less than a quarter of labour requirements on all farm types, except for the largest cereals farms. Similarly, FBS data shows that contracting costs are generally small compared to other machinery costs. Hence it appears that most farmwork on most farms is still carried out using their own labour (family or paid).
- Large livestock farms are generally more likely to use contractors than smaller ones. On cropping farms, smaller farms use contractors more, particularly for combining and other operations requiring expensive equipment. Farms with a high proportion of unpaid family labour tend to make less use of contractors.
- Large numbers of farms are also gaining income from contracting, but this is also generally at a low level, with few farms generating more than 10% of their farm business output from agricultural contracting. Many farms gain income from agricultural contracting, but also use contractors themselves.
- The overall FBS estimate of income from agricultural contracting in 2011 was around 75% of the total costs of contracting, suggesting that around a quarter of contract work is done by businesses that are not farms in the FBS population.

Contracting on English farms: evidence from existing surveys

Agricultural contractors are a key part of the agricultural industry. From the farmer's perspective they permit the efficient and timely completion of key field operations without the need to take on extra staff or to buy expensive machinery. From Defra's perspective they have an important role in meeting the organisation's objectives relating to the competitiveness of the farming industry and protecting the environment, particularly through the uptake of modern, efficient machinery.

This document summarises the existing evidence on agricultural contracting from Defra surveys. The first data source used is the 2010 June Agricultural Census, which included questions on contracting as part of the additional Structural Survey questions¹. There was a tick box response for whether the holding did agricultural contracting as a diversified activity, plus a quantitative estimate of the amount of work done by contract labour on the holding. The second source is the Farm Business Survey. This includes estimates of the amount of money spent on contracting every year, and gives more detail on the activities involved in the 2011-12 Energy Module. There is also information on the earnings from contracting as a diversified activity.

Some caution is needed in comparing the two sources because they make different divisions of the data. The June Survey distinguishes between casual labour, which is paid direct by the farmer at a rate per hour or per day, and contract labour where the contractor submits an invoice for the work done. The latter is meant to include the labour involved in operations involving the contractor's own machinery such as silaging, combining, etc.

By contrast, the FBS includes both directly employed casual labour and contract labour where no machinery is involved within the same category. However it separates out contracting involving machinery, and this category is recorded solely in terms of the cost of the work, with no estimate of the time taken.

Results

June Census: contracting as diversification

Figure 1 shows estimates for the percentage of farms carrying out agricultural contracting on other farms. The horizontal axis subdivides farms based on their economic size². Considering each farm type in turn:

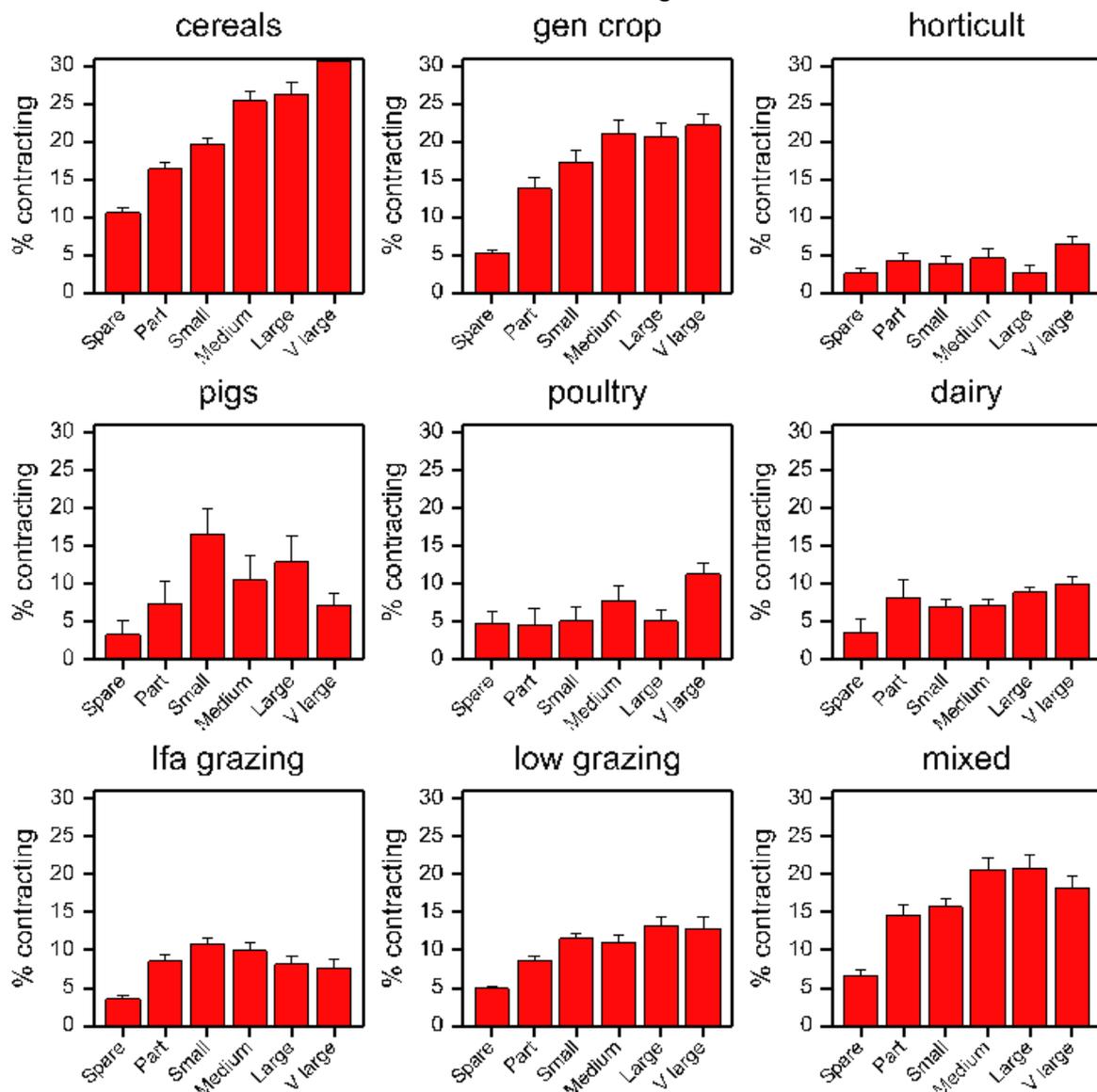
- The proportion of **cereals** farms carrying out contracting is strongly linked to economic size. Levels of contracting are lowest in Yorkshire and Humberside, although this is partially due to the smaller average size of the cereals farms in this area. After adjusting for size, contracting levels are equally low in the East Midlands and the South East, and highest in the North West.

¹ The questions were also asked in 2013, but with a smaller sample size.

² The measure of economic size is based on the farm's Standard Labour Requirement (SLR). See http://farmbusinesssurvey.co.uk/DataBuilder/defra-stats-foodfarm-farmmanage-fbs-UK_Farm_Classification.pdf for more details.

- General cropping farms also show an increase in contracting with size, although it levels off for the higher size bands. There is no significant geographic pattern.
- Horticulture farms show an increase with size; the blip for large farms is probably just due to a fairly small sample size. Horticulture covers a variety of different types of enterprises and it is likely that rates differ between these.
- Rates for pig farms seem to peak at the small economic size band. It is possible that contracting is limited by biosecurity concerns on many larger units.
- By contrast, it is the very large poultry units which show the highest percentage carrying out contracting.
- Dairy farms show low rates for spare-time farms; these are probably hobby farmers since dairying isn't usually viable at these levels.
- Grazing livestock farms also show low percentages for spare-time hobby farms.
- Mixed farms, not surprisingly, show a trend that is midway between that for cereals farms and the pattern of the extensive livestock types.

Figure 1: percentage of farms carrying out agriculture diversification (i.e. acting as agricultural contractors) from the 2010 June Census. Bars are upper 95% confidence limits. The horizontal axis shows economic size categories.

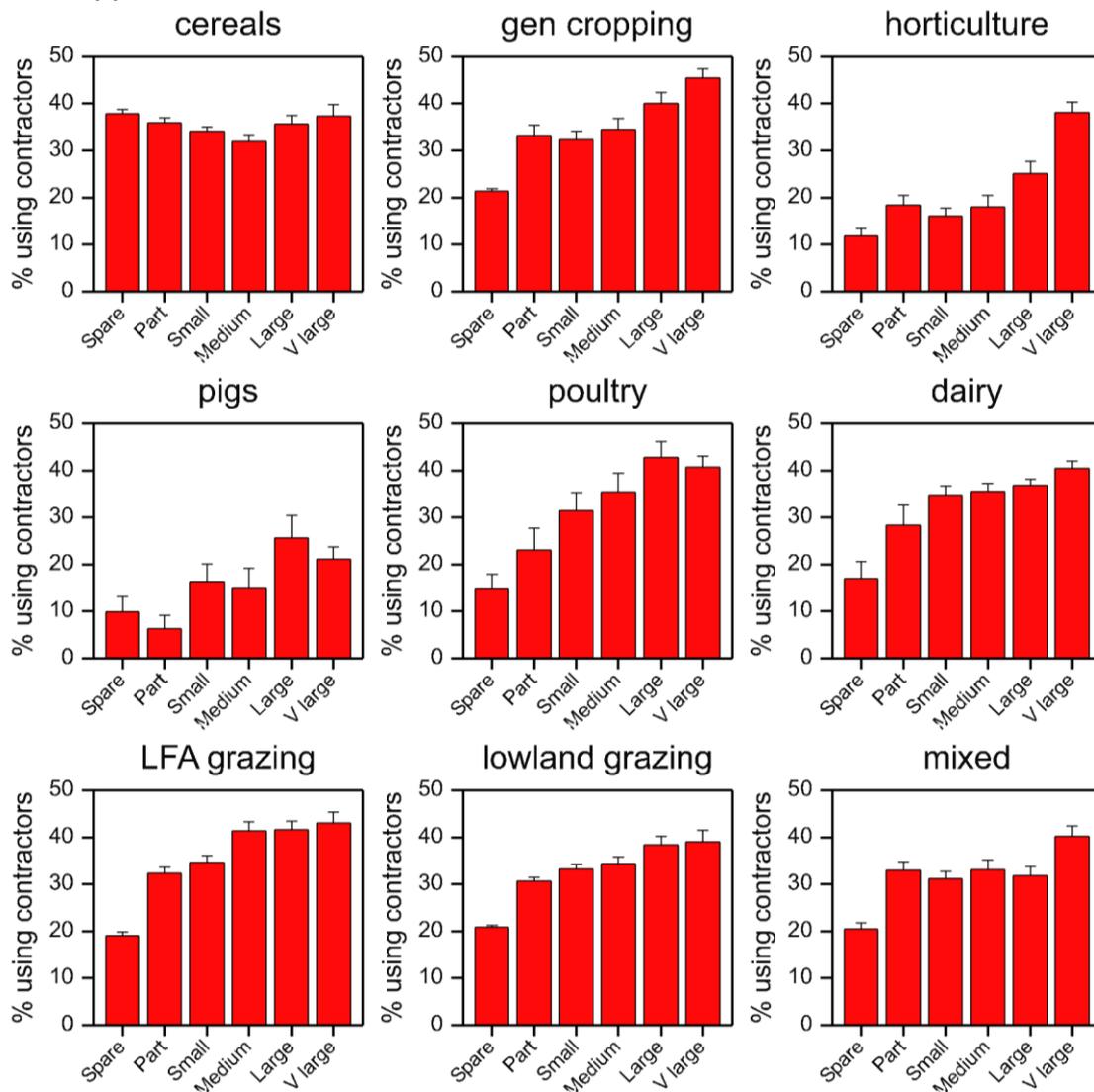


June Census: use of contract labour

The survey asked farmers for the number of person-days worked by contractors in the last year. As discussed above these figures relate both to the contracting of labour per se, and hiring of machinery with an operator, although it may be that some responders do not understand this, and may not even know the labour input to the contract work. Figure 2 shows the percentage of farms returning a non-zero response to this question, whilst Figure 3 shows the overall proportion of labour usage that is provided by contractors. Generally usage of contractors tends to increase with farm size on both measures, with the exception of cereals farms where smaller farms tend to have the highest usage, particularly in terms of the percentage of Annual Work Units (AWU) provided by contractors.

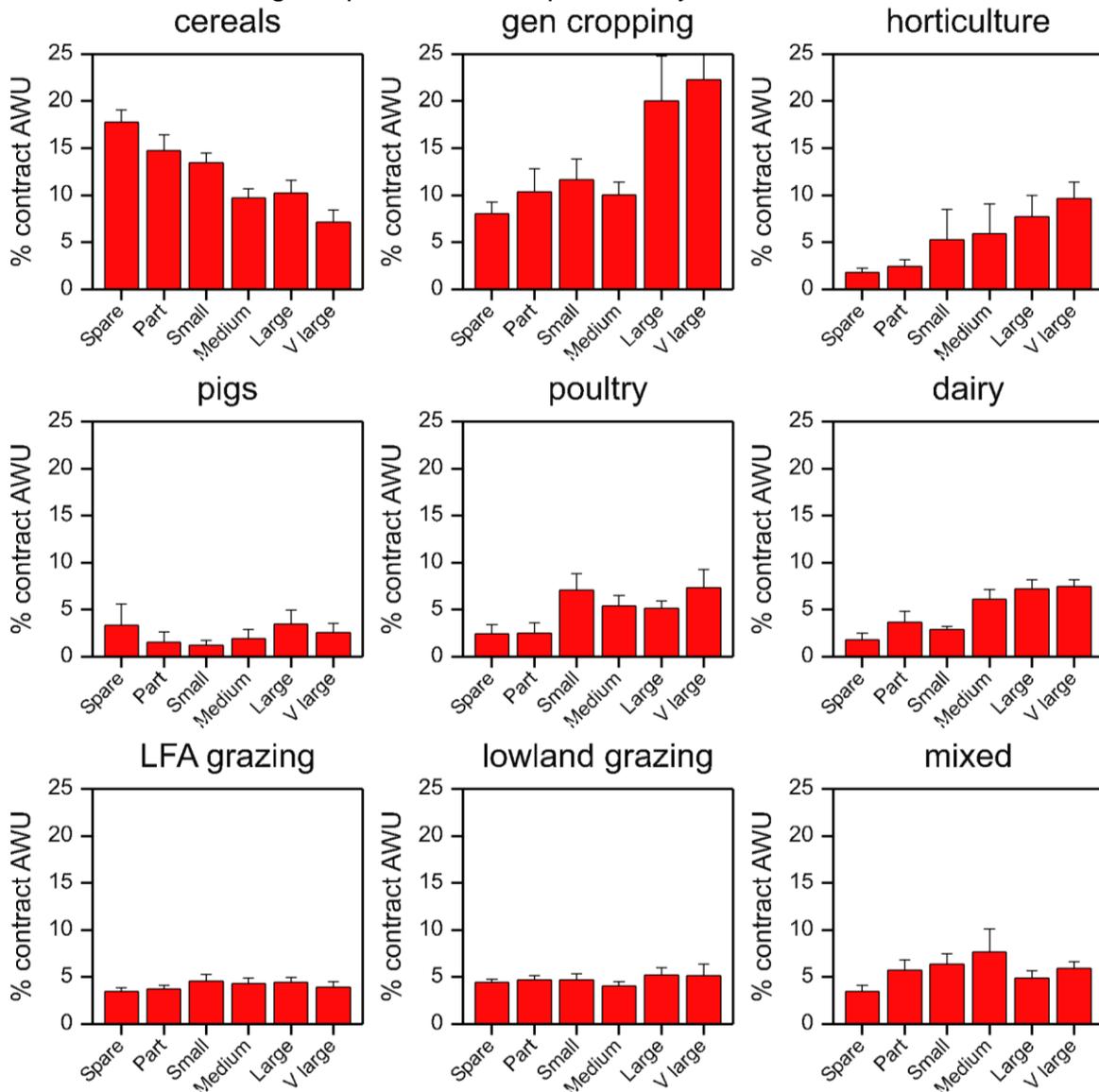
Whilst contractors are used by a reasonably large percentage of livestock farmers (Figure 2), the overall proportion of labour provided by contractors is always less than 10% (Figure 3). Pig farms stand out in terms of their low rate of use of contractors; this is likely to be driven by worries about biosecurity.

Figure 2: percentage of farms using contract labour from the 2010 June Census. Bars are upper 95% confidence limits.



Interestingly, there is a small but significant relationship between carrying out agricultural contracting and using contract labour. 31% of those farms that do agricultural contracting also use contractors on their own farm, compared to 29% of those not engaged in contracting. Cereals is the only sector where this does not apply, with 28% of those doing contracting using contractors, compared to 37% of those not engaged in contracting for others.

Figure 3: contract labour as a percentage of all farm labour from the 2010 June Census. Bars are upper 95% confidence limits. The total labour figure used as the denominator includes regular paid labour, unpaid family labour and contract labour.



Farm Business Survey: use of contractors

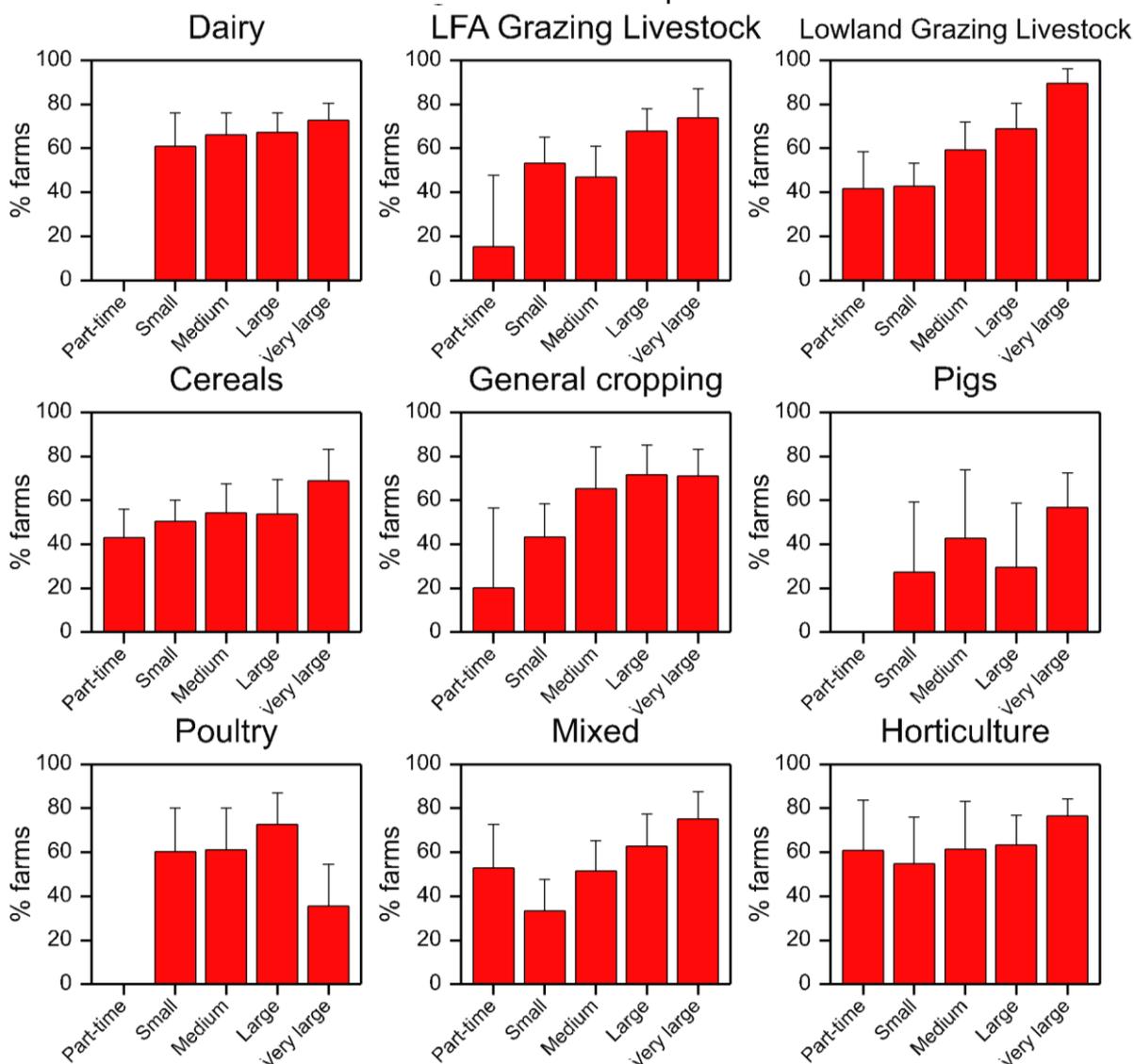
Costs associated with contract work are recorded in two separate places in the FBS:

- Contract labour, where the person does not bring their own machinery (e.g. dairy staff or vegetable pickers), is recorded in Section B, together with other casual or seasonal labour.

- Contract work involving the hire of machinery and labour (e.g. someone coming to cut silage) are recorded in Section F

Considering first contract labour, Figure 4 shows the percentage of farms recording costs associated with contract, casual or seasonal labour. Analysis is based on 2011-12 data in order to tie in with the Energy Module results presented later. Results are not dissimilar to those in Figure 2 in terms of the absolute levels and the general tendency for the incidence of casual labour to increase with farm economic size.

Figure 4: percentage of farms recording some expenditure on contract or casual labour from the 2011 Farm Business Survey. Bars are upper 95% confidence limits. Bars are not shown where there are less than 10 responses.



Turning to the second source of contracting information, Figure 5 shows the percentage of farms recording some expenditure on hiring contractors with machinery. As can be seen, the percentage figures are close to 100% for all farm types other than poultry and horticulture. Part-time upland grazing livestock farms also show a smaller proportion using contract labour. The percentages are significantly higher than those in Figure 2, suggesting that some farmers are failing to record contracted machinery operations in their

response to the June Survey contract labour question. However, some of this difference may be explained by the lower thresholds for inclusion in the June Survey.

Figure 5: percentage of farms recording some expenditure on contract work from the 2011 Farm Business Survey. Bars are upper 95% confidence limits. Bars are not shown where there are less than 10 responses.

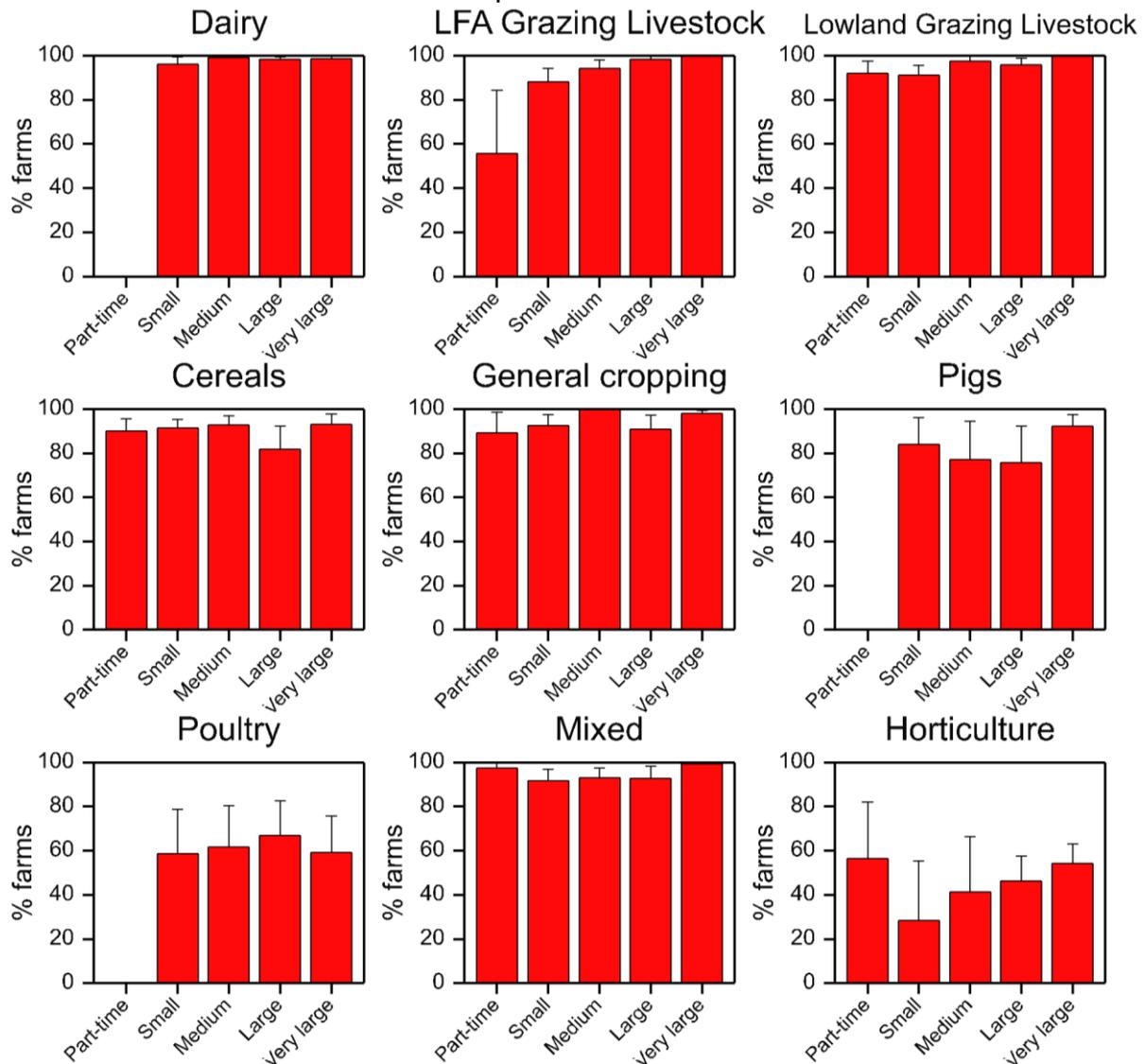
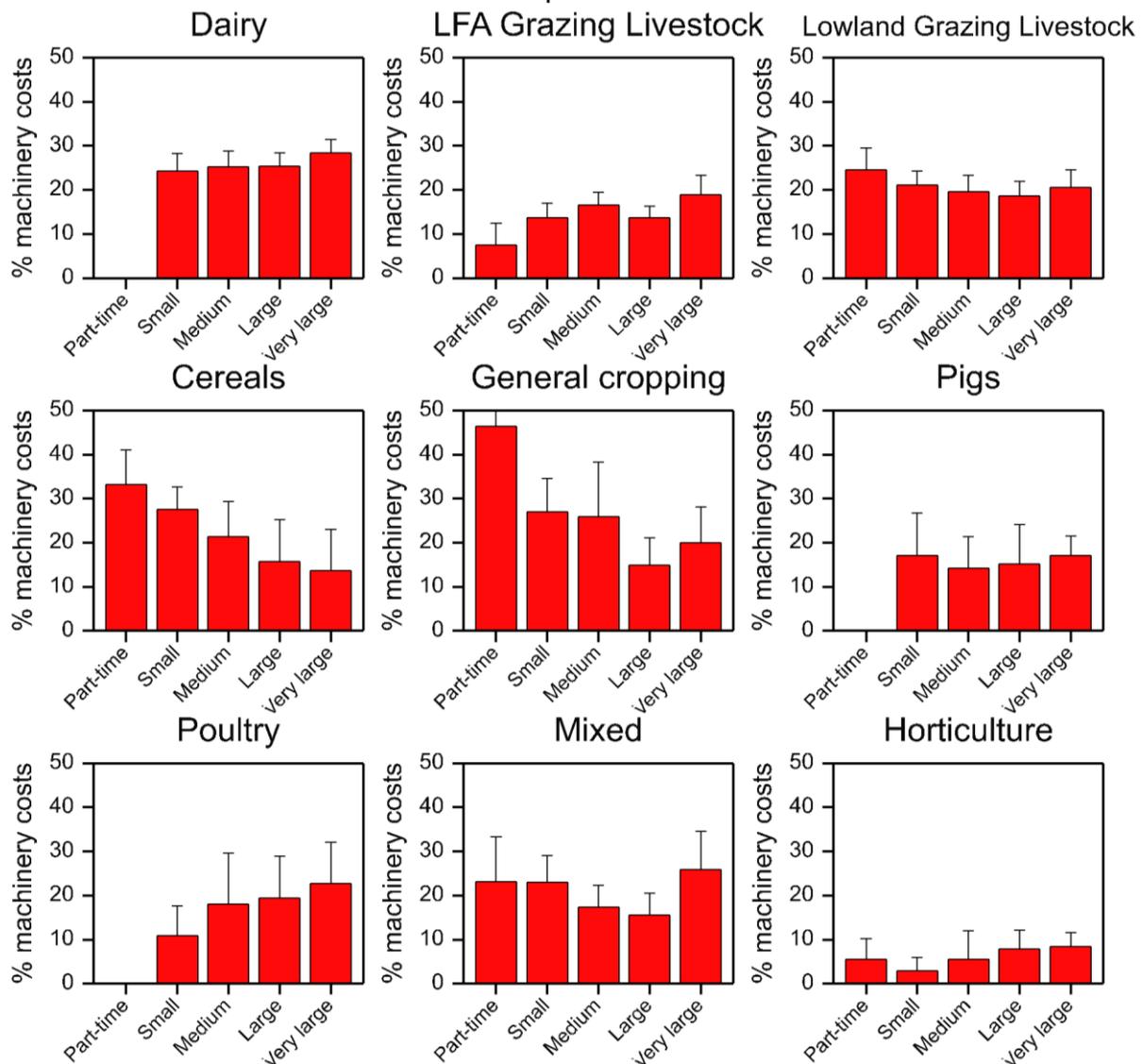


Figure 6 looks at contracting costs as a percentage of all costs for machinery and contracting. Note that, whilst this is a useful yardstick for making comparisons, it cannot be interpreted as the percentage of machinery operations carried out by contractors as the divisor of the percentage does not include the labour costs associated with the farm's own staff. Whilst some farm types, such as LFA grazing and poultry show increasing percentages for larger farms, cereals and general cropping farms show the reverse, with the smaller farms in economic terms showing higher figures.

Temporal shift in the FBS data was also examined by analysing all years from 2003 to 2012. On the whole the picture is remarkably stable, with little change over the ten year period. Cereals farms do show a slight increase and this appears to be due to increasing levels of contracting on small farms.

Figure 6: contracting costs as a percentage of all machinery and contracting costs from the 2011 Farm Business Survey. Bars are upper 95% confidence limits. Bars are not shown where there are less than 10 responses.



Farm Business Survey: agricultural contracting as a diversified activity

Agricultural contracting activities are recorded in section I under activity code 912 (agricultural hirework). Data was taken from the output column (column 1). This may include some cases where the payment is received in kind rather than as a cash sum.

Figure 7 shows the percentage reporting agricultural hirework. On the whole, it is those farm types reporting high levels of contracting costs in the earlier graphs that are also reporting a higher incidence of output from contracting. This suggests that much of the work may be between farms of the same type, which is logical since they will have the appropriate machinery and skills.

Figure 7: percentage of farms registering output from agricultural hirework, based on the 2011 Farm Business Survey. Bars are upper 95% confidence limits. Bars are not shown where there are less than 10 responses.

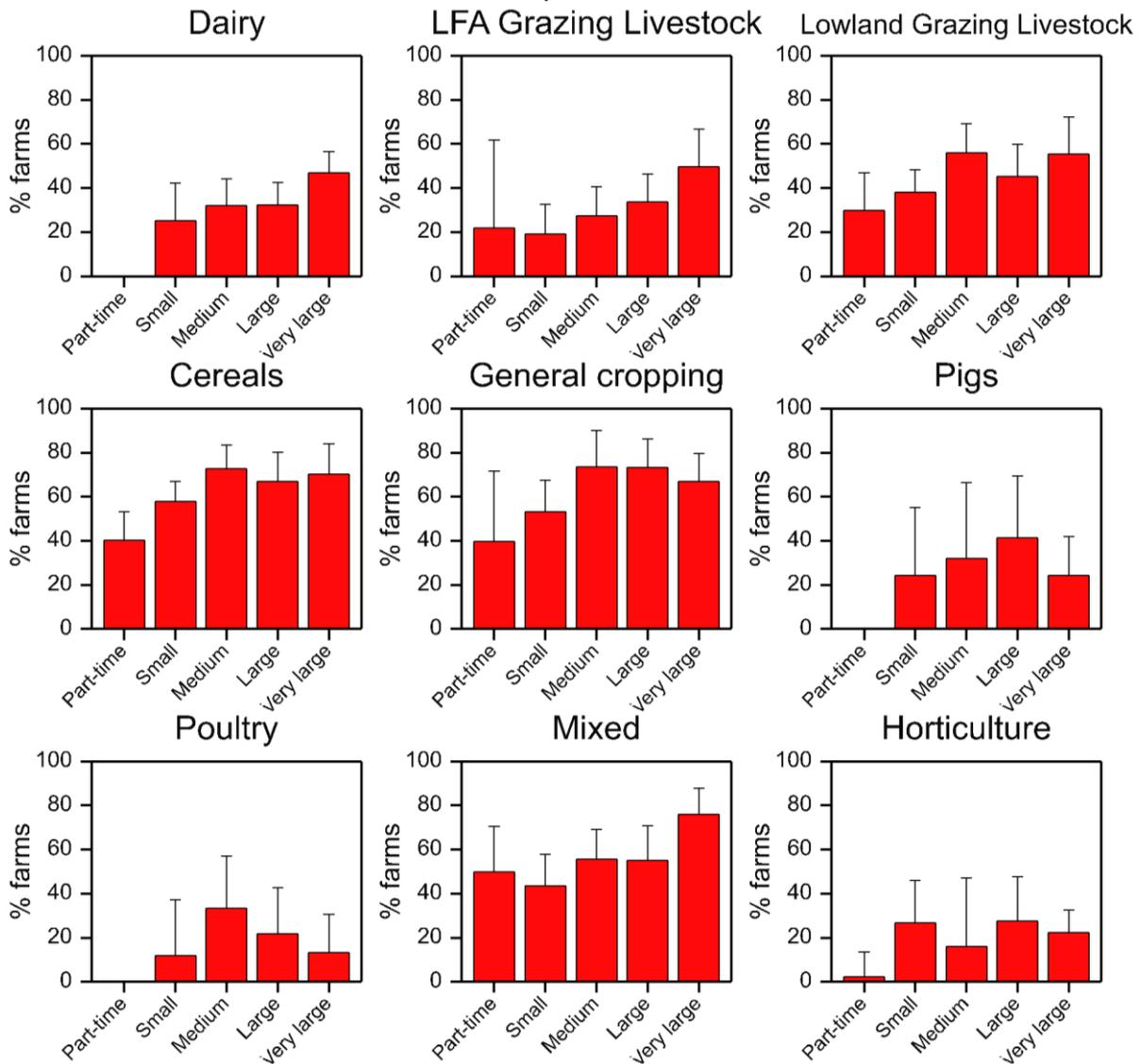
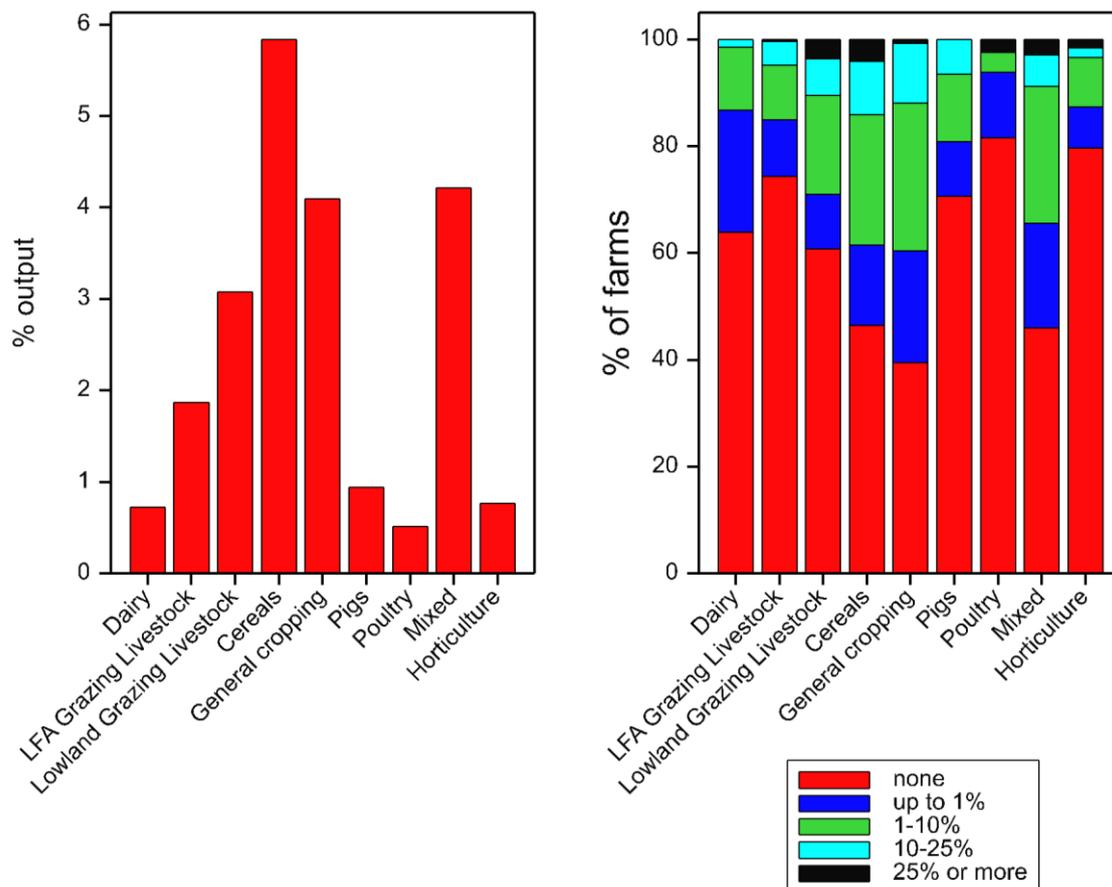


Figure 8 expresses the output from agricultural hirework as a proportion of the total farm business output for each farm in 2011. There is little sign of any trend with farm size and so the left hand graph displays means for each farm type. When averaged over all farms, agricultural hirework accounts for only 3% of farm business output (95% confidence limits 2.4% to 3.7%); however, as is shown by the right hand graph, it contributes a much higher proportion for some farms, with 14% of cereals farms receiving at least 10% of their income from agricultural hirework.

Figure 8: output from agricultural hirework as a percentage of total farm business output, based on the 2011 Farm Business Survey. The left hand graph shows the mean percentage for each farm type, whilst the right hand graph shows the percentages in different bands.



Farm Business Survey: relationship between contracting in and out

So far, the use of agricultural contractors for field operations on the farm and income from contracting on other farms have been examined separately, but it is useful to bring these aspects together both at the aggregate level and at the level of individual farms.

In 2011 the total output from agricultural hirework was £492 million (s.e. £58 million), compared to total expenditure of £652 million (s.e. £33 million). This suggests that around £160 million of contracting work was carried out by businesses that were not farms in the FBS population. These figures vary somewhat from year to year, and there are other uncertainties (such as hirework done for farms below the FBS thresholds), but it is nevertheless clear that the majority of agricultural contracting is done by farm businesses, not by specialist contractors.

Table 1 breaks this down by farm type in order to indicate the balance between contracting income and expenditure. Cereals are the one type where the total output from hirework exceeds the total expenditure.

Table 1: output from agricultural hirework and expenditure on hirework for 2011 by robust type.

	Hirework output		Hirework costs		Ratio income: expenditure
	total £m	s.e.	total £m	s.e.	
Dairy	23.9	5.3	145.1	9.5	0.165
LFA Grazing Livestock	12.3	4.6	18.1	1.4	0.681
Lowland Grazing Livestock	43.2	6.6	61.7	5.3	0.701
Cereals	220.7	48.7	194.6	19.4	1.134
General cropping	101.3	20.5	124.6	22.2	0.813
Pigs	6.4	3.1	11.6	2.5	0.553
Poultry	4.4	3.3	12.9	3.1	0.342
Mixed	69.6	22.2	70.4	10.0	0.988
Horticulture	10.1	3.1	12.9	3.1	0.783
All types	492.0	58.3	651.8	33.4	0.755

Notes: excludes spare-time farms

At the individual farm level it is clear that many farms both buy in contract work and generate income by undertaking hirework on other farms. In 2011 91% of farms undertaking hirework also had hirework expenditure, compared to 82% of those not themselves engaged in hirework, although this difference is not statistically significant after allowing for farm type and farm size effects.

2011-12 FBS Energy Module

The FBS Energy Module included a series of questions on contracting operations in order to estimate the energy used by contractors. Data is recorded in either hectares or hours, but this analysis looks at the proportion of farms recording the different categories, thus avoiding the problems of converting between the two units. The form recorded 33 different categories, but some of these had very few positive responses, whilst others were separated out solely to allow accurate recording of energy (e.g. combining with and without carting) and can sensibly be combined for this analysis. Thus the results here are based on 15 categories.

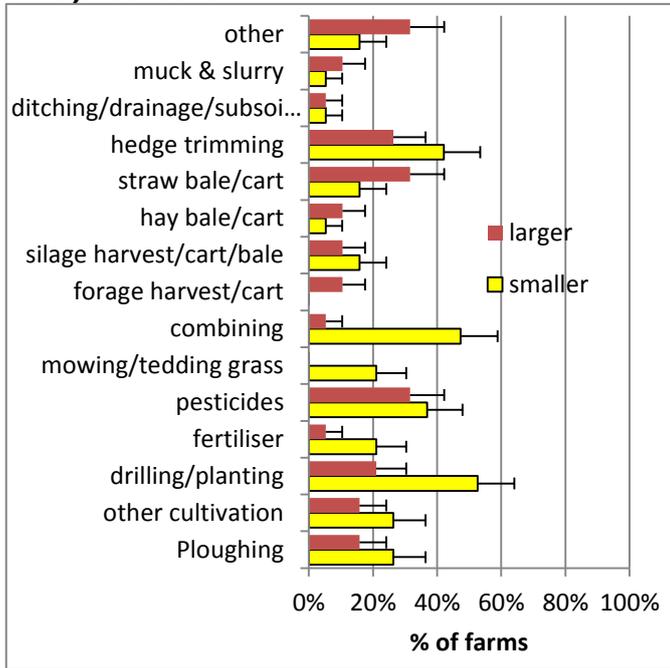
Responses are only available for 204 farms of six types (approximately 40 cereals, dairy, lowland grazing livestock and LFA grazing livestock farms, and 20 pig and poultry farms). Because of this relatively small sample size, reliable and robust population weights cannot be calculated, and so the results in this section are unweighted. For similar reasons, estimates cannot be calculated for the usual size bands within each type, and the different average sizes of the different types makes it impossible to use a single size division for all types. Instead farms are categorised according to whether they are bigger or smaller than the median size (in SLR terms) for the farm type.

Results are shown in Figure 9 for the four extensive farming types. Results for pig and poultry farms are not shown, partly due to the smaller sample sizes, but also because the vast majority of the contracting relates to other enterprises on the farm, especially arable cropping, rather than the core pig and poultry enterprises. Looking at the results in turn:

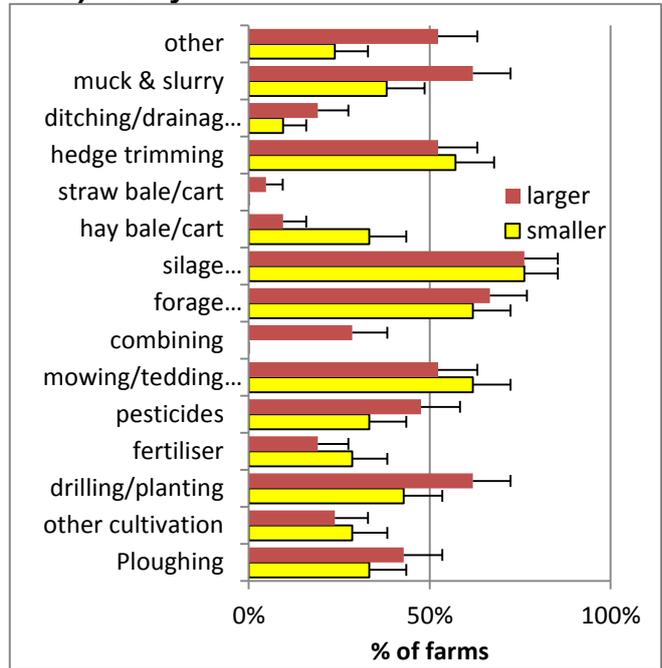
- **Cereals:** levels are relatively low for all activities, although many are not relevant to the core cereal enterprise. Percentages are generally higher for smaller farms, particularly for those operations involving expensive machinery, such as combining.

Figure 9: percentage of farms recording different operations carried out by contractors, based on the 2011 Farm Business Survey Energy Module. Sample sizes are approximately 40 farms for each farm type, with the bars representing one standard error.

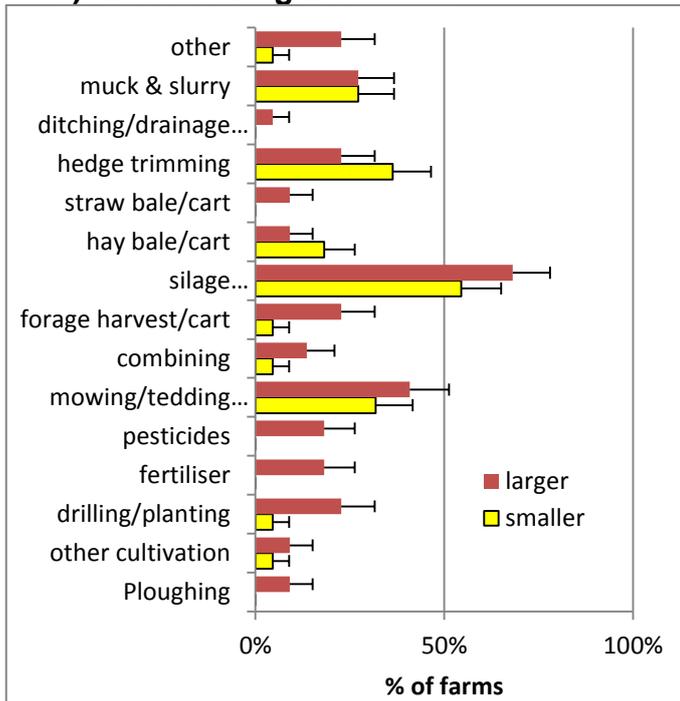
a) Cereals



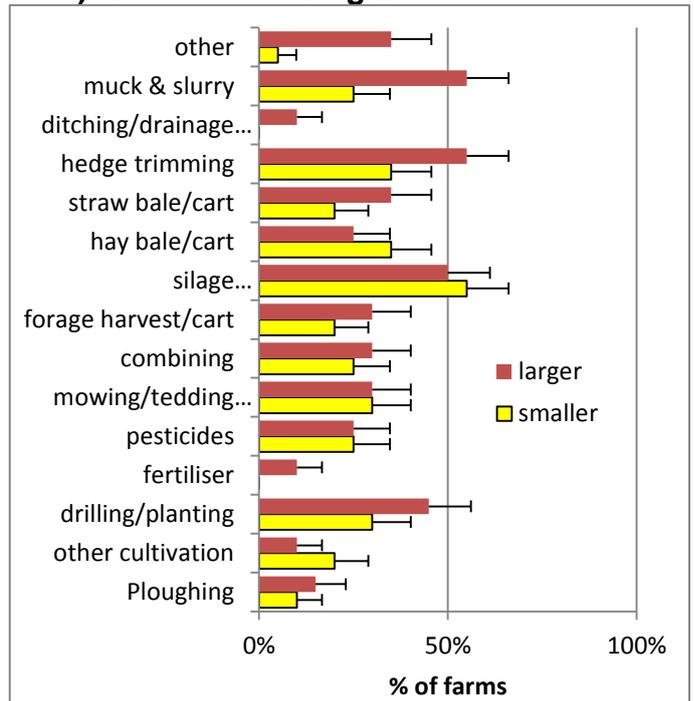
b) Dairy



c) LFA Grazing Livestock



d) Lowland Grazing Livestock



- **Dairy:** contractors are widely used for a variety of operations, with around three quarters using contractors for some or all of their silage making. Levels do not vary appreciably between large and small farms, apart from combining and this is because only the large farms are likely to have combinable crops.
- **LFA Grazing Livestock:** around 60% of farms use contractors for some or all of their silage making, but otherwise levels are relatively modest. Larger farms make slightly more use of contractors than smaller ones, particularly for fertiliser and pesticide application, where none of the 20 smaller farms used contractors.

of these farms choose to do non-urgent activities themselves, particularly when the equipment required is not particularly complex. For example, whilst a contractor might be able to spread slurry with high efficiency in terms of both volume per hour and environmental performance, for many farms it will still be cheaper in terms of cost per unit volume to carry out the task more slowly using second-hand equipment and family labour. Modelling of the Energy Module results confirms this supposition; the number of different activities for which contracting is used shows a significant negative relationship with the proportion of paid labour (logistic regression slope -0.0224, s.e. 0.0093, $t=2.41$, $P=0.017$). The relationship is clearly apparent in the case of lowland grazing livestock farms (Figure 10).

Whilst the work presented here provides a summary of the currently available evidence relating to agricultural contracting, it will be important to continue to monitor the issue, given its importance to the restructuring of English agriculture in the coming years. There are also some remaining gaps in the evidence, particularly regarding those contracting businesses which are not farms, and which therefore fall outside the scope of the FBS and other farm surveys. Whilst the results presented here suggest that these non-farming contractors account for only about a quarter of all agricultural contract work, this is still a substantial contribution, and some caution is needed about this estimate, due to the possible under-representation of those farms relying extensively on contractors in the FBS sample. It is hoped that other survey work in the future will provide further information on this point.