Analysis of Cattle Prices and Specifications

Stage 1

Distribution of animals by conformation, fat class and weight band

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Introduction

AHDB collects a wide range of data as part of its deadweight cattle price reporting system. This data is used to report average prices to the industry (and government/EU commission) on a weekly basis. Historically, little further analysis of the data collected has been undertaken.

Recent reports of changes to pricing specifications by processors have led to an increased interest in providing more transparency about the deadweight cattle market. In response to this, the AHDB Market Intelligence department is undertaking a programme of analysis of data from the price reporting system.

Analysis is also underway to improve the understanding of how prices vary within a single classification (eg R4L steers), as well as between classifications. The first of a series of articles can be found here and further articles are planned for the coming months, starting in May 2016.

This report contains stage 1 of a four stage plan to provide more transparency around deadweight cattle prices and analyses the distribution of animals across the grid.

The aim at this stage is to understand and publish the percentage of animals which hit different classification levels (taking account of both confirmation and fat class). It also provides information about the proportion of animals with heavy and light carcase weights, as reports suggest that there have been changes to processors' preferred weight bands.

Conformation and Fat Class grid

The deadweight price reporting system collects the conformation, fat class and carcase weight for each animal. These measures are important because together they generally determine how much producers get paid for each carcase. Conformation is based on an eight-point scale. This is based on the lean meat yield from the carcase. Grades are (in descending order of lean meat yield) E, U+, -U, R, O+, -O, P+ and -P. Some processors use a more detailed classification (eg splitting U, O and P classifications into three rather than two categories). Where this is the case, animals have been allocated to an appropriate conformation category.

Fat class is reported on a seven-point scale. In increasing order of fat cover, the classes are 1, 2, 3, 4L, 4H, 5L and 5H. Again, where processors use a more detailed classification, animals are allocated to an appropriate class in the price reporting system.

The analysis below looks at the distribution of prime cattle between the different conformation and fat class categories. To ensure that any weekly variations are eliminated, the analysis is based on all animals slaughtered during three typical months. As data is collected weekly, the analysis is based on the four-week periods closest to the calendar month, as follows:

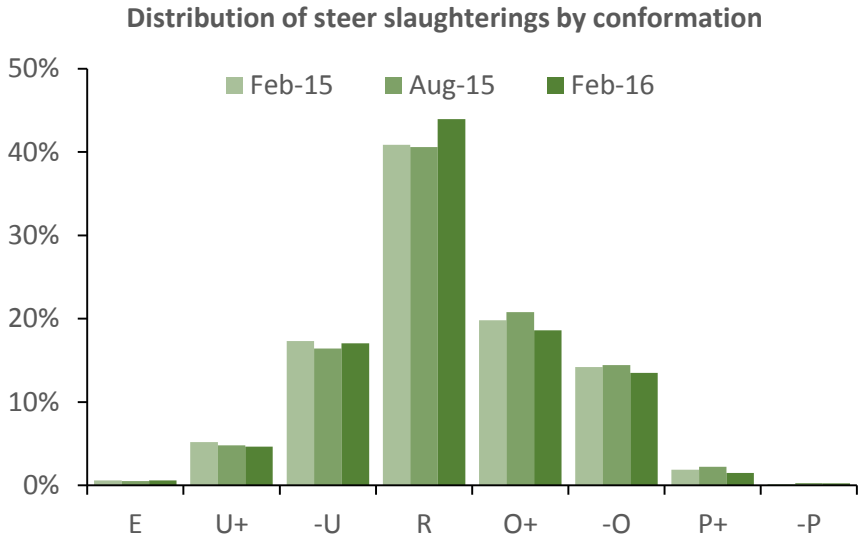
- February 2015 (covering 1-28 February)
- August 2015 (covering 2-29 August)
- February 2016 (covering 31 January – 27 February).

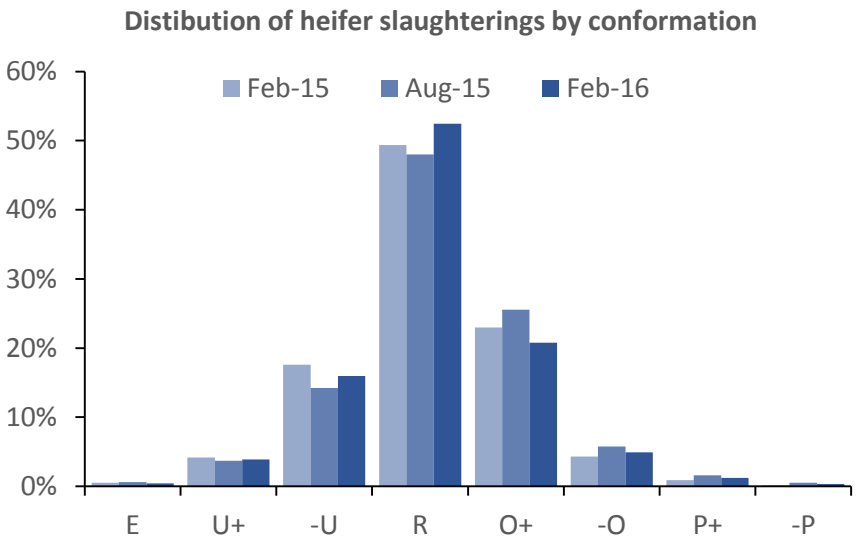
The analysis is based on price reporting data supplied to AHDB, which does not cover all animals slaughtered during the periods covered but amounts to over 84,000 animals in each month. Price reporting is supplied by all slaughterhouses killing over 20,000 animals per year but most smaller abattoirs are not covered. In order to maintain a consistent sample across all three months, we have only included centres which have reported consistently in each month. As a result, three centres which provided data through only part of the period covered have been removed from the analysis.

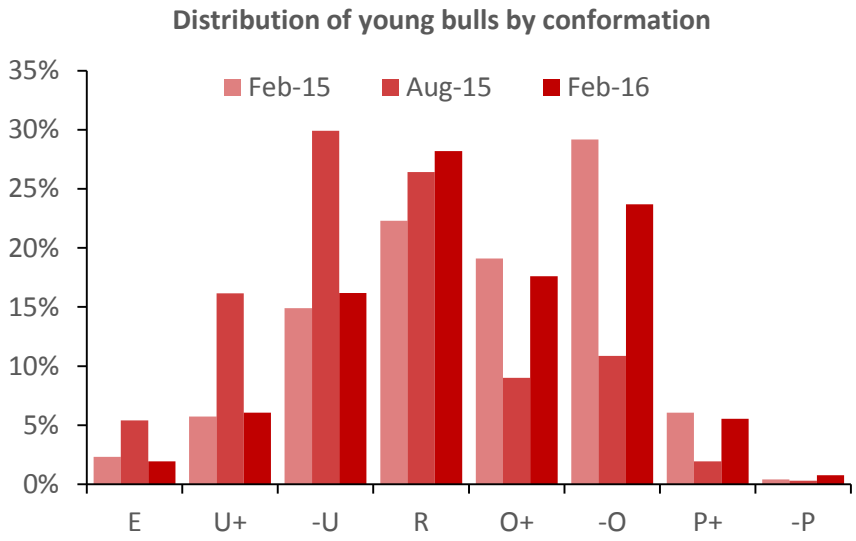
A full breakdown of the proportion of animals in each square of the conformation-fat class grid can be found in the Appendix.

Conformation

The distribution of animals by conformation is shown in the charts below, for steers, heifers and young bulls separately.







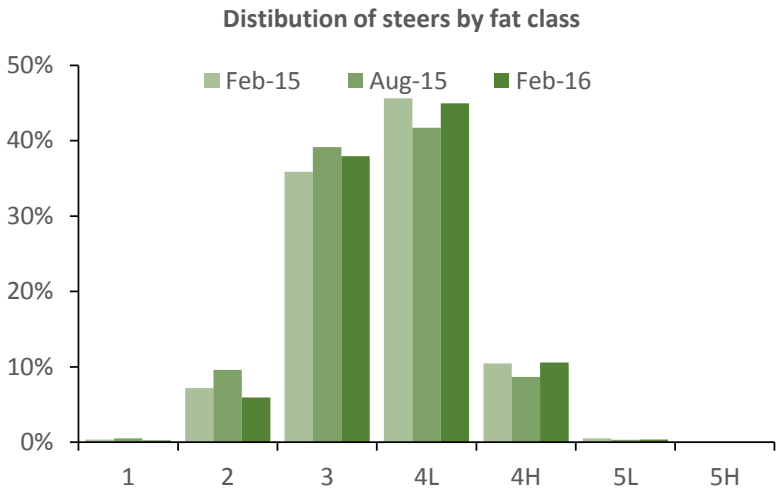
The charts show that for both steers and heifers, close to half of all animals slaughtered in each month were classified grade R. Slightly more grade below R on lean meat yield (mainly O+ or –O) than above. This pattern was reasonably consistent over the three periods analysed. However, there was some movement between February 2015 and a year later, with a shift towards R grade, mainly from O. This represents a small improvement in the conformation of carcases over that period.

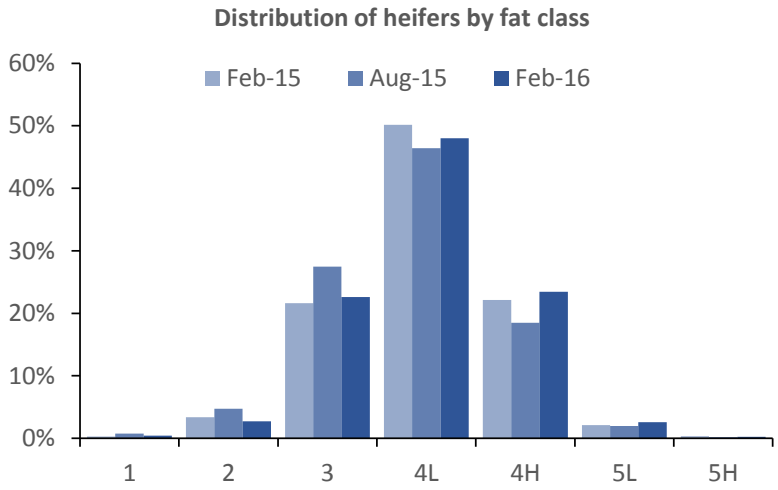
The chart for young bulls shows a more even spread between categories and more variation between periods. This is partly due to the much smaller number of animals involved. However, there is also a clear seasonal pattern, with far more animals classifying at U grade in August and at O in February. This is probably due to the fact that most young bulls come from spring calving systems. Therefore, animals slaughtered in August will typically be significantly older than those in February.

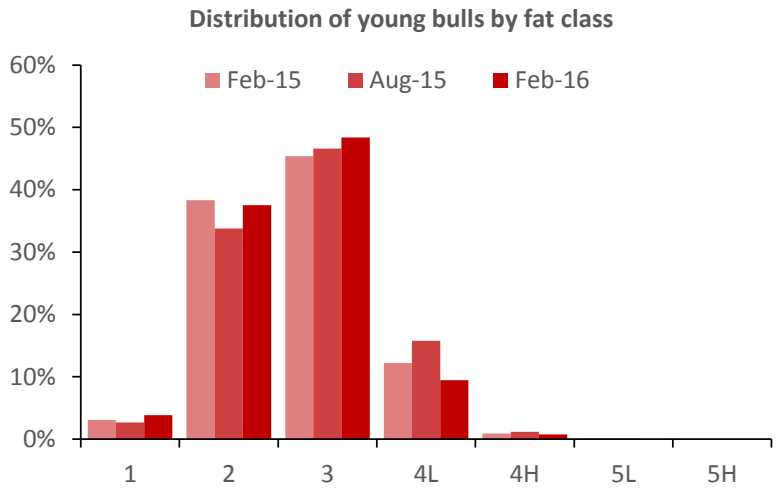
Comparing February 2015 with February 2016 takes out the effect of this seasonality. Based on this, we see a similar pattern to that apparent for steers and heifers, with an increase in R grade carcases, mainly due to a reduction in O grades (particularly –O).

Fat Class

The distribution of animals by fat class is shown in the charts below, for steers, heifers and young bulls separately.







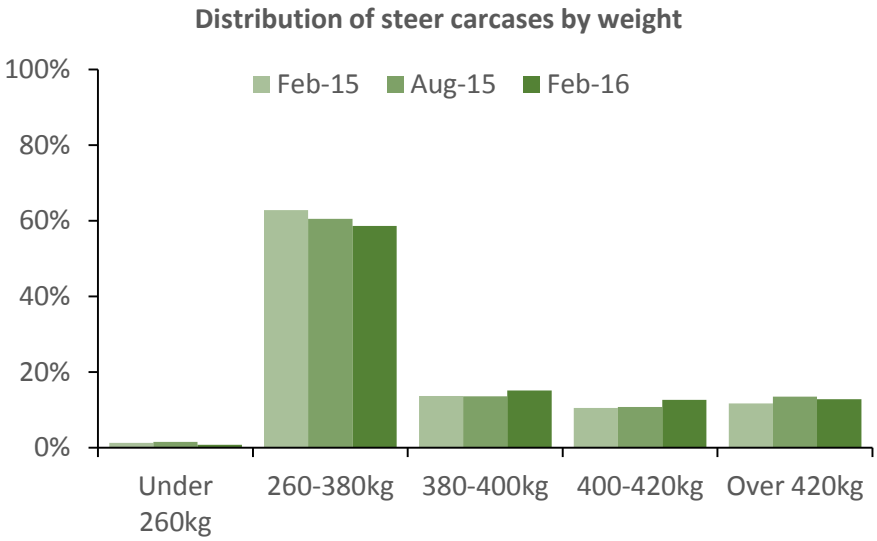
The charts show that over 80% of steers classify as fat class 3 or 4L, while over 80% of young bulls are in class 2 or 3, with none in 5L or 5H. There is slightly more variation for heifers, with about 70% in class 3 or 4L but a significant minority (around 20%) in class 4H.

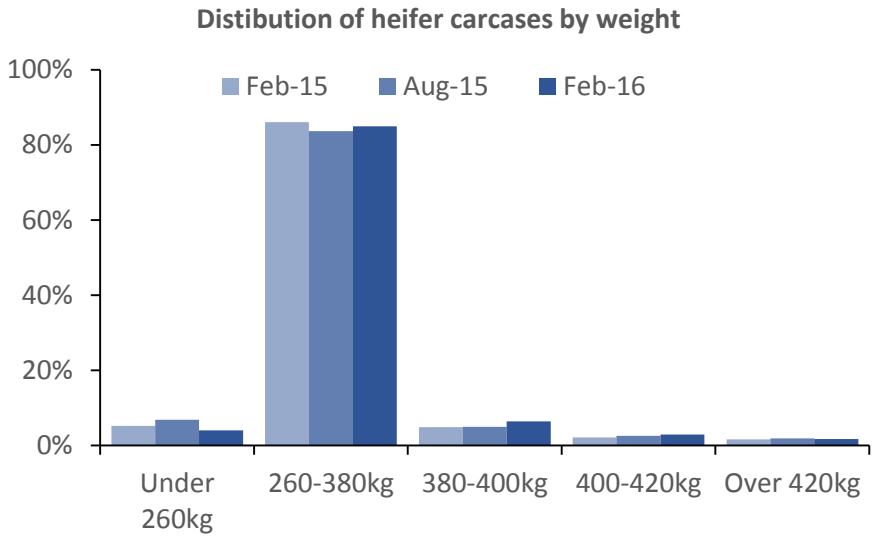
The distributions show some seasonal variation, perhaps partly due to more animals slaughtered in August being finished off grass, but relatively little change over time. For young bulls, there does appear to have been a modest movement towards class 3, particularly from 4L.

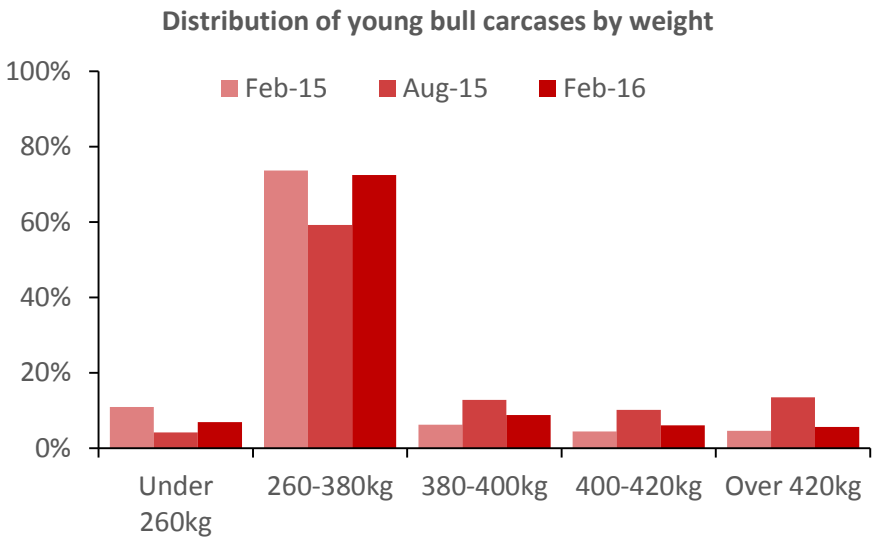
Carcase weight

So far, the analysis has focused on the main conformation/fat class grid. However, most processors also take carcase weight into account in their payment schedule. Typically, this takes the form of penalties for carcases which fall below or above a target range. Reports suggest that, until recently, this range has typically been from around 260kg to 420kg. However, some processors are now thought to be reducing (or planning to reduce) the top end of the range to 400kg or even 380kg. This is said to be in response to changes in consumer demand towards smaller cut sizes, which can be difficult to achieve from heavier carcases.

Given this, it is useful to look at the proportion of carcases which fall within different weight bands. The overall distribution is shown below for steers, heifers and young bulls separately.







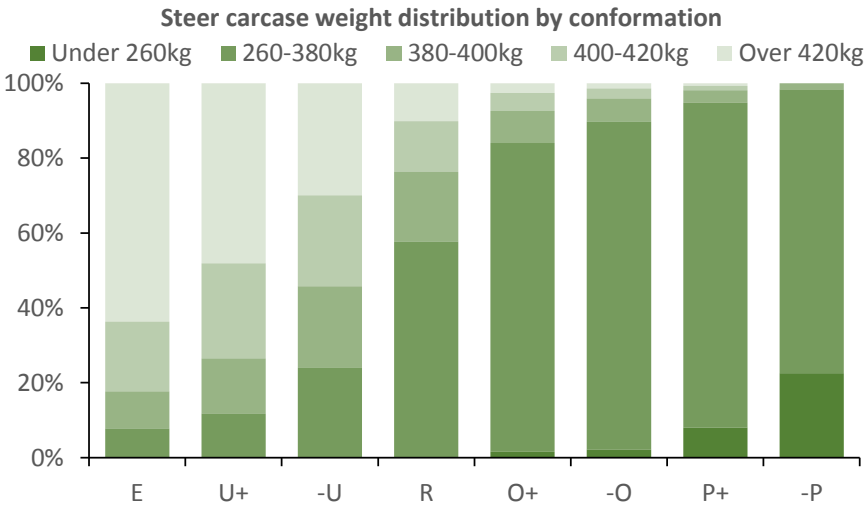
The analysis shows that around 85% of heifers fall in the 260-380kg weight band, which would keep them within specification for most processors even after the upper weight limit is reduced. Less than 2% are over 420kg. However, the proportion falling between 380kg and 420kg did increase slightly in the year to February 2016, from 7% in February 2015 to 9% a year later. There were also a significant number of underweight carcases (below 260kg), although the proportion was lower in February 2016 (4%) than a year before (5%).

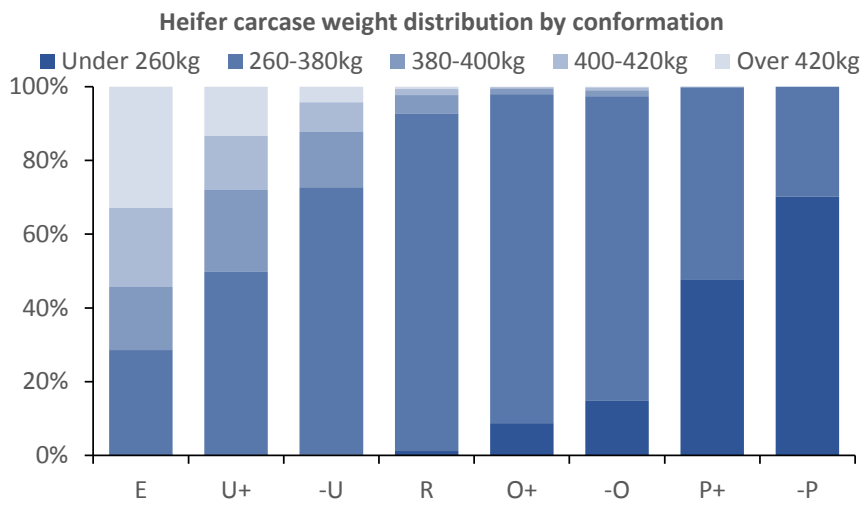
More male cattle will be affected by any changes to upper weight limits. Only around 60% of steer carcases were between 260 and 380kg, with the proportion slightly lower this February than last. This is because the proportion of heavier carcases has risen, from 36% in February 2015 to 41% this year. Increases have been seen in all weight bands, with those between 380kg and 400kg up from 14% to 15%, the 400-420kg band rising from 11% to 13% and those over 420kg from 12% to 13%.

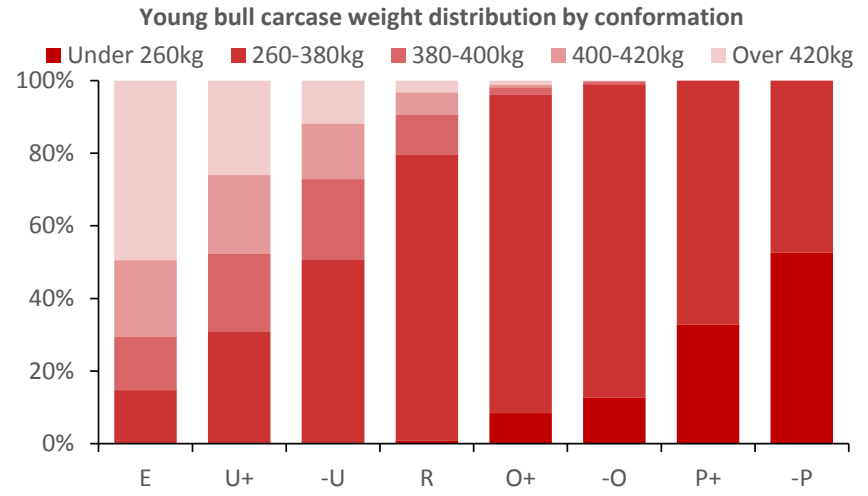
For young bulls, weights show a similar seasonal pattern to that seen for conformation. There are significantly more heavy carcases in August that in February. In August 2015, less than 60% of young bull carcases were in the prime 260-380kg range. 4% were below that range but 37% were above it, with 13% over 420kg (and 24% over 400kg). In February, the proportion hitting the target range was higher, over 70%. A significant proportion at this time of year were under 260kg (11% in 2015, 7% in 2016) but, as with steers and heifers, the proportion over 380kg rose between the two years. In February 2015, 15% were over 380kg, with 9% over 400kg and 5% over 420kg. A year later, 21% were above 380kg, 12% over 400kg and 6% weighed more than 420kg.

Carcase weights by conformation and fat class

It is also useful to look at how carcase weights vary between different parts of the conformation/fat class grid. The charts below illustrate the distribution of weights for each conformation class, for steers, heifers and young bulls separately. The charts illustrate the distributions for February 2016.





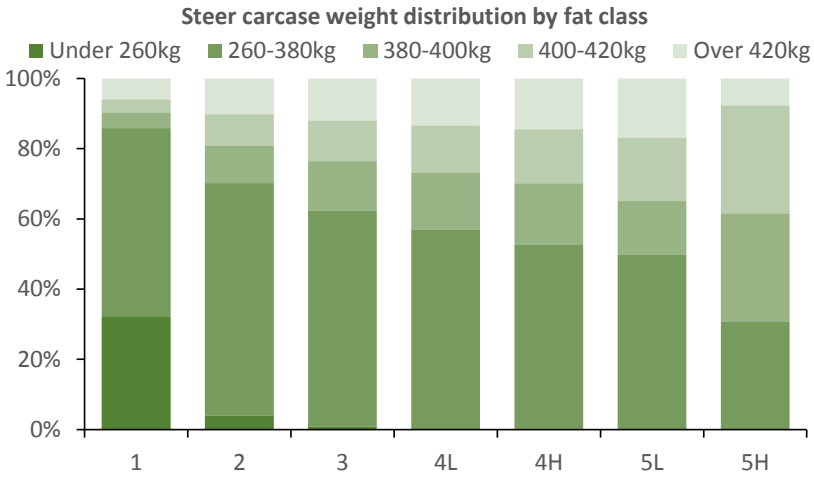


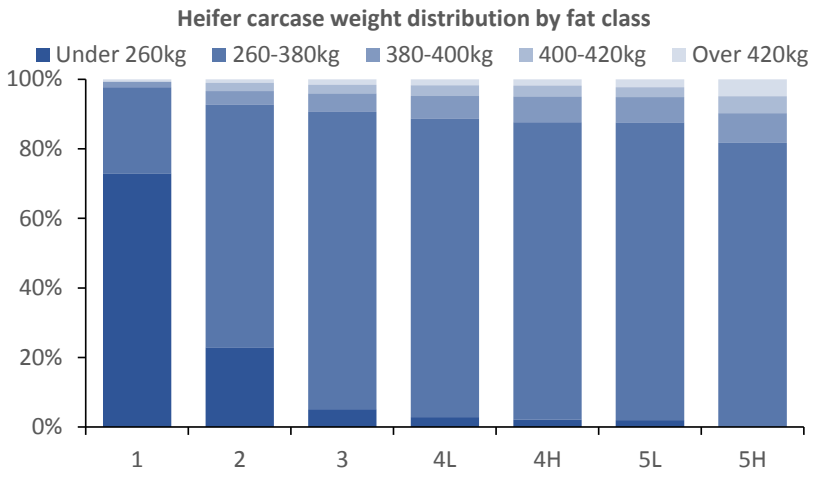
It is clear from these charts that the heavier carcases are concentrated in the E, U+ and –U classes, which often attract price bonuses, particularly for heifers and young bulls. For steers, there are also a significant proportion of R grade carcases weighing over 380kg but the proportions are lower for young bulls and, particularly, heifers. Underweight carcases predominantly grade at P+ or –P.

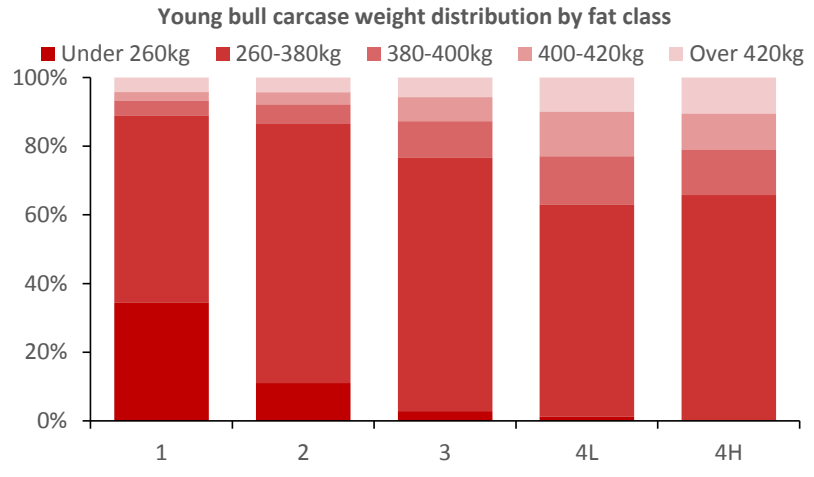
This finding potentially has significant implications for those producers who are currently aiming to deliver animals with the highest conformation, where bonuses for conformation could, in future be

offset by penalties for heavy weights. Many of these animals are above the existing 420kg carcase weight cut off. However, even more of them are over 380kg. Indeed, for steers, very few E, U+ or –U carcases are below this weight level. Any change to weight limits would particularly affect these producers and might require them to adjust their system towards producing lower conformation, lower weight animals.

The final set of charts below illustrate the weight distribution by fat class. As might be expected, these show that heavier carcases are most apparent in the higher fat classes. However, there are substantial numbers of carcases weighing over 380kg (and indeed over 420kg) in all fat classes. This shows that, while adding weight can lead to animals becoming fatter, that isn't necessarily the case.







Next steps

This report covers the first stage in a programme of analysis to improve the transparency of cattle price reporting. The remaining stages of the analysis and the timescales for their completion are detailed below. Further reports will be published presenting the results of the analysis in stages 2 and 3.

Stage 2: Importance of different factors in determining total market value (by end June 2016)

The total value of the animals marketed in a given week has reduced recently. The aim of this stage will be to look at the extent to which the change (reduction) in the total value is down to the following factors:

- Change in the base price in the market
- Change in the number of animals marketed
- Change in the mix and specification of animals marketed
- Differences in the changes in prices paid for animals of different specifications.

Stage 3: Comparing prices for different specifications against lean meat yields (by end July 2016)

The final stage of the analysis will look at average lean meat yields for different carcase classifications and use this to derive average prices per unit of lean meat. The aim is to understand whether the prices paid for animals of different classifications are "fair" based on their meat yield. The analysis will also take account of other factors which might affect the effective yield, such as cut sizes (eg cuts that are too large potentially require further trimming, effectively reducing yield).

Stage 4: Implementation of analysis within standard reporting

Once the analysis outlined above has been completed, we will consider how the findings can be replicated within our standard price reporting (either on a weekly or monthly basis). This is likely to be delivered through the Tableau software reports, which are currently under development. These reports will allow users to interrogate the price reporting data in more detail, with controls to prevent access to confidential data. Reports will be available for demonstration and testing purposes by the autumn.

For further information about the analysis, please contact the authors:

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Appendix: Distribution of animals in AHDB Deadweight Cattle sample by conformation and fat class

Steers

February 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	1%
U+	0%	1%	3%	2%	0%	0%	0%	5%
-U	0%	1%	6%	8%	2%	0%	0%	17%
R	0%	2%	12%	20%	6%	0%	0%	41%
O+	0%	1%	6%	10%	2%	0%	0%	20%
-O	0%	2%	7%	5%	0%	0%	0%	14%
P+	0%	1%	1%	0%	0%	0%	0%	2%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	0%	7%	36%	46%	10%	0%	0%	

August 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	1%
U+	0%	1%	2%	1%	0%	0%	0%	5%
-U	0%	1%	6%	7%	2%	0%	0%	16%
R	0%	2%	14%	19%	5%	0%	0%	41%
O+	0%	2%	8%	10%	2%	0%	0%	21%
-O	0%	2%	7%	5%	0%	0%	0%	14%
P+	0%	1%	1%	0%	0%	0%	0%	2%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	1%	10%	39%	42%	9%	0%	0%	

February 2016

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	1%
U+	0%	1%	2%	1%	0%	0%	0%	5%
-U	0%	1%	6%	8%	2%	0%	0%	17%
R	0%	2%	14%	21%	6%	0%	0%	44%
O+	0%	1%	7%	9%	2%	0%	0%	19%
-O	0%	1%	7%	5%	0%	0%	0%	13%
P+	0%	0%	1%	0%	0%	0%	0%	2%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	0%	6%	38%	45%	11%	0%	0%	

Heifers

February 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	1%
U+	0%	0%	2%	2%	0%	0%	0%	4%
-U	0%	1%	4%	9%	3%	0%	0%	18%
R	0%	1%	10%	26%	12%	1%	0%	49%
O+	0%	1%	4%	11%	6%	1%	0%	23%
-O	0%	0%	1%	2%	1%	0%	0%	4%
P+	0%	0%	0%	0%	0%	0%	0%	1%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	0%	3%	22%	50%	22%	2%	0%	100%

August 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	1%
U+	0%	0%	2%	1%	0%	0%	0%	4%
-U	0%	1%	5%	6%	2%	0%	0%	14%
R	0%	2%	12%	24%	10%	1%	0%	48%
O+	0%	1%	6%	12%	6%	1%	0%	26%
-O	0%	0%	2%	3%	1%	0%	0%	6%
P+	0%	0%	1%	0%	0%	0%	0%	2%
-P	0%	0%	0%	0%	0%	0%	0%	1%
Total	1%	5%	27%	46%	18%	2%	0%	100%

February 2016

	1	2	3	4L	4H	5L	5H	Total
E	0%	0%	0%	0%	0%	0%	0%	0%
U+	0%	0%	1%	2%	0%	0%	0%	4%
-U	0%	0%	4%	8%	3%	0%	0%	16%
R	0%	1%	11%	26%	13%	1%	0%	52%
O+	0%	0%	4%	9%	6%	1%	0%	21%
-O	0%	0%	1%	2%	1%	0%	0%	5%
P+	0%	0%	1%	0%	0%	0%	0%	1%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	0%	3%	23%	48%	23%	3%	0%	100%

Young Bulls

February 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	1%	1%	0%	0%	0%	0%	2%
U+	0%	2%	3%	1%	0%	0%	0%	6%
-U	0%	4%	7%	3%	0%	0%	0%	15%
R	0%	7%	10%	4%	0%	0%	0%	22%
O+	0%	6%	11%	2%	0%	0%	0%	19%
-O	1%	14%	13%	2%	0%	0%	0%	29%
P+	1%	4%	1%	0%	0%	0%	0%	6%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	3%	38%	45%	12%	1%	0%	0%	100%

August 2015

	1	2	3	4L	4H	5L	5H	Total
E	0%	3%	2%	0%	0%	0%	0%	5%
U+	0%	6%	8%	1%	0%	0%	0%	16%
-U	0%	8%	15%	6%	0%	0%	0%	30%
R	0%	7%	12%	6%	1%	0%	0%	26%
O+	0%	3%	5%	1%	0%	0%	0%	9%
-O	0%	5%	5%	0%	0%	0%	0%	11%
P+	0%	1%	0%	0%	0%	0%	0%	2%
-P	0%	0%	0%	0%	0%	0%	0%	0%
Total	3%	34%	47%	16%	1%	0%	0%	100%

February 2016

	1	2	3	4L	4H	5L	5H	Total
E	0%	1%	1%	0%	0%	0%	0%	2%
U+	0%	2%	3%	0%	0%	0%	0%	6%
-U	0%	5%	9%	2%	0%	0%	0%	16%
R	1%	9%	15%	4%	0%	0%	0%	28%
O+	0%	6%	9%	2%	0%	0%	0%	18%
-O	1%	12%	10%	1%	0%	0%	0%	24%
P+	1%	4%	1%	0%	0%	0%	0%	6%
-P	0%	0%	0%	0%	0%	0%	0%	1%
Total	4%	38%	48%	9%	1%	0%	0%	100%