The Value of Independence

MEAT AND LIVESTOCK COMMERCIAL SERVICES LTD (MLCSL)

PIG
CARCASE AUTHENTICATION AND VERIFICATION SERVICES
Pig Carcase Classification for the Meat Industry

Meat and Livestock Commercial Service Ltd’s (MLCSL) Independent Authentication Service

The information provided by MLCSL’s Pig Carcase Authentication Service is used widely as the basis for transactions between producers and slaughterers. MLCSL is a wholly owned subsidiary of the Agriculture and Horticulture Development Board.

The current service incorporates all of the mandatory requirements of the EC Pig Carcase Grading Scheme which was introduced in Great Britain in 1989.

What does the service provide?

The service provides pig abattoirs with MLCSL’s Authentication Service classifiers who are technically trained to legislative requirements and a documented Quality System, accredited by UKAS. The classifiers independently establish all of the important criteria intended to form the basis of the deadweight transaction between pig suppliers and abattoirs and deliver confidence and assurance at a vital point within the supply chain.

The service includes:

Identification – Carcases are individually serial-numbered and the slap marks are read and recorded to identify each consignment of pigs. The Pigs (Records, Identification and Movement) Order 2003 requires all pigs going to slaughter to be identified with a Defra allocated herdmark on both shoulders. This must be legible before and after slaughter. This legibility is vitally important to both the individual producer and the industry as a whole, as this allows correct tracing of the pigs for both payment and bio-security (see page 11 or BPEX – Pigs work instruction 2).

Weighing – Carcases are individually weighed. Hot weights are recorded, with a hot weight rebate and dressing coefficients deducted to establish the payment weight (see page 5 for details of the hot weight rebate and dressing coefficients). To ensure accuracy when weighing, regular scale and tare checks form an integral part of the service. Mature boars and sows are not covered by the mandatory scheme, but an independent weighing service is available as part of the MLCSL’s Authentication Service.

Assessment of Carcases – MLCSL classifiers are trained to operate all of the approved classification/grading equipment to provide independent backfat measurement and the lean meat percentage calculations. (see Methods and Probes).

Visual Appraisal – Identification of pigs with carcase faults. These are described as ‘Z’ carcases. Carcases that are scraggy, deformed, blemished (see page 9), pigmented, coarse skinned, those with soft fat or pale muscle and those devalued by being partially condemned are recorded as ‘Z’ on the classification documents. Young boars are identified and recorded. Carcases with poor conformation, particularly of the leg, are recorded as ‘C’ carcases at the request of the abattoir.

Dressing Specification – There are two methods of pig carcases dressing in the UK; the EC method, which involves the removal of the Tongue (Tng), Flare Fat, Kidney and Diaphragm (FFKD) which is recorded on the kill record as ‘Tng out and FFKD out’. And the UK specification, which involves retaining these, ‘Tng in and FFKD in’. Carcase dressing specifications are closely monitored by MLCSL staff to ensure compliance and provide a vital element of the carcase record (see appendix 1 and 2).
Methods and Probes

MLCSL can offer four methods, of pig carcase classification for the prediction of lean meat percentage in accordance with EU legislation. Each method involves taking carcase measurements with EU approved equipment at specified positions on each carcase. The following equipment is approved in the UK:

Introscope (Optical Probe), Hennessey Grading Probe (HGP), Fat-O-Meater (FOM), AutoFOM and CSB Ultra-Meater.

The HGP, FOM, AutoFOM and CSB Ultra-Meater are all automatic recording probes.

Optical Probe

Method 1 – Optical Probe is used to measure back-fat and rind thickness at the P1 and P3 positions, level with the head of the last rib. The probe is inserted 4.5cm and 8cm from the dorsal mid-line respectively (see Figure 1 overleaf). The sum of the P1 and P3 measurements is recorded.

Method 2 – Optical Probe is used to measure back-fat and rind thickness at the P2 position, level with the head of the last rib. The probe is inserted 6.5cm from the dorsal mid-line respectively (see Figure 1 overleaf).

Hennessey Grading Probe (HGP) and Fat-O-Meater (FOM)

Method 3 – HGP or FOM are used to measure:

- Back-fat and rind thickness at the P2 position as for Method 2. The HGP or FOM probes are inserted 6cm from the dorsal mid-line (see Figure 1 overleaf).
- Back-fat and rind thickness at a point 6cm from the dorsal mid-line between the third/fourth last rib (see Figure 1 overleaf). This measurement is referred to as rib fat.
- Eye muscle, (Longissimus dorsi), depth at a point 6cm from the dorsal mid-line between the third and fourth last rib (see Figure 1 overleaf). This measurement is referred to as rib muscle.

Time of measuring back-fat and rind thickness

Measurement of back-fat thickness is taken at the time of weighing, ie normally within 45 minutes of slaughter. No adjustment is made when the measurements have been taken at a later time.
AutoFom and CSB Ultra-Meater

Method 4 – AutoFom and CSB Ultra-Meater are ultrasound methods:

**AutoFOM** – Provides ultrasonic images throughout the carcase by passing individual carcases over a U-shaped cradle of ultrasonic transducers. The data is then used to generate a three dimensional ultrasound image which is analysed by computer to provide information regarding the carcase composition.

**CSB Ultra-Meater** – the CSB Ultra-Meater is also an ultrasonic device using ultrasound B-scan techniques. It measures back fat and muscle thickness longitudinally 6cm from the mid-line in the region of the third fourth last rib. The measurement results are converted into estimated percentage lean meat through the CSB Ultra-Meater itself.
Lean Meat Percentage and EU Grade

The lean meat percentage is calculated as follows:

Optical Probe

The cold carcase weight and P2 (or P1+P3) fat depths are used to estimate lean meat percentage.

Automatic and Ultrasound Methods

The automatically recorded measurements P2, rib fat and rib muscle are used for calculation of lean meat percentage. Ultrasound methods predict lean meat percentage from a number of fat and muscle measurements.

An EU grade can be allocated to a carcase by using the lean meat percentage figure below:

<table>
<thead>
<tr>
<th>Lean meat EU grade percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>60% and above</td>
<td>S</td>
</tr>
<tr>
<td>55 – 59%</td>
<td>E</td>
</tr>
<tr>
<td>50 – 54%</td>
<td>U</td>
</tr>
<tr>
<td>45 – 49%</td>
<td>R</td>
</tr>
<tr>
<td>44 – 44%</td>
<td>O</td>
</tr>
<tr>
<td>39% or less</td>
<td>P</td>
</tr>
</tbody>
</table>

Hot Weight Rebate (for clean pigs and young boars)

The carcases are weighed to the calibration divisions on the scale and the actual scale display is recorded. When pig carcases are weighed ‘hot’, the hot carcase is reduced in weight by 2%, if weighed within 45 minutes of slaughter. This is to allow for moisture loss from the carcase after slaughter. Where pig carcases are dressed ‘Tng in, FFKD in’ coefficients are used to ensure that the estimated lean meat percentage can be established to EU Regulations.

Tongue (Tng)/Flare Fat, Kidney and Diaphragm (FFKD) Coefficients

<table>
<thead>
<tr>
<th>Hot weight carcase range in kg</th>
<th>Tng Out FFKD Out</th>
<th>Tng In FFKD Out</th>
<th>Tng Out FFKD In</th>
<th>Tng In FFKD In</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;56</td>
<td>0</td>
<td>0.3</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>56.5 – 74.5</td>
<td>0</td>
<td>0.3</td>
<td>1.1</td>
<td>1.4</td>
</tr>
<tr>
<td>75&gt;</td>
<td>0</td>
<td>0.3</td>
<td>1.6</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Deductions in kg

The coefficients are applied in addition to the 2% hot weight rebate.
Hot Weight Rebate for Breeding Pigs

There is a fixed rebate table system used for breeding sows and boars which is applied as follows:

<table>
<thead>
<tr>
<th>Hot weight (kg)</th>
<th>Within 1 hr of slaughter (kg)</th>
<th>Thereafter but within 4 hrs of slaughter (kg)</th>
<th>Thereafter but between 4 to 6 hrs of slaughter (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>to 56</td>
<td>1.0</td>
<td>0.5</td>
<td>-</td>
</tr>
<tr>
<td>56.5 – 71</td>
<td>1.5</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>71.5 – 94</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>94.5 – 107</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>107.5 – 120</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td>120.5 – 140</td>
<td>3.5</td>
<td>3.0</td>
<td>2.5</td>
</tr>
<tr>
<td>140.5 – 160</td>
<td>4.0</td>
<td>3.5</td>
<td>3.0</td>
</tr>
<tr>
<td>160.5 – 180</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
</tr>
<tr>
<td>180.5 – 200</td>
<td>5.0</td>
<td>4.5</td>
<td>4.0</td>
</tr>
<tr>
<td>200.5 &amp; over</td>
<td>5.5</td>
<td>5.0</td>
<td>4.5</td>
</tr>
</tbody>
</table>

NOTE: a) If weighed ‘cold’, the carcases will be weighed within 24 hours of slaughter.
   b) Carcases which are to be skinned can be weighed with the hair on; with a deduction of 1.5kg made for the weight of hair.

The Value of Independence

MLCSL’s Pig Carcase Authentication Service is the only UKAS accredited national provider of independent classification services. MLCSL’s UKAS accreditation gives the following benefits:

- Provides assurance within the supply chain that the independent service follows a laid down code of practice.
- Gives confidence that it’s quality control systems operate to an agreed standard with regular monitoring, both internal and external.

The independent service also makes a major contribution to transparency throughout the supply chain providing confidence between producers and abattoirs. Regular performance monitoring ensures technical standards are delivered consistently across Great Britain by a dedicated team of Classifiers and Managers, providing confidence in the classification process thereby contributing to the effective marketing of the finished stock and the ultimate transaction between buyer and seller.
Including FFKD:
- Flare Fat
- Kidney
- Diaphragm

Excluding FFKD

Neck Trimming

Untrimmed

Trimmed to Specification

Overtrimmed
Clean pigs and young boars

A  The following parts shall be removed:
   a) Hair (see note b under Hot Weight Rebates)
   b) Liver, melt, heart and lungs, i.e. the ‘pluck’ or ‘race’
   c) Guts
   d) Caul and gut fat
   e) Genito-urinary organs, excluding kidneys
   f) Scrotal sac on boar carcases
   g) Nails on each foot

B  The following parts shall not be removed:
   a) The head
   b) The feet and tail
   c) Ear root and eyes
   d) There shall be no trimming of the neck beyond cutting off ragged edges and cleanly removing the blood vessels, (see ‘neck trimming’, Appendix 1)

C  The tongue may either:
   a) remain attached to the carcase or
   b) be removed from the head attached to the pluck, taking with it the minimum amount of meat attached to the jaw

D  The flare fat, kidneys and diaphragm (FFKD) may either:
   a) remain attached to the carcase or
   b) be entirely removed

Note: A dressing coefficient reduction will be made according to the dressing specification used, (see page 5).

Mature Boars

Mature boar carcases may be dressed as in A, B, C and D above, or as sow carcases (see below).

Sows

The following parts shall be removed, in addition to a-e in Section A above:
   a) Head (to be square cut)
   b) Tail
   c) Flare fat and diaphragm
   d) Kidney and kidney fat
   e) Front and hind feet
   f) Udder (to be removed tidily)
Carcase Damage – Fighting

Z Carcases

The natural inclination of pigs to establish a pecking order will result in fighting when peer groups are mixed. The resulting carcase damage, particularly to the loin and leg, can devalue the carcase considerably, leading to a reduction in the price paid for the carcase. Carcases damaged in this way are recorded as Z carcases (blemish).

Carcase Identification

Slap Marks

Correctly and clearly applied slaps are essential for carcases to be accurately identified on slaughter lines. A Defra allocated herdmark must be applied to both shoulders. They are an important means of tracing pigs for payment, bio-security and disease control. Slap markers should be regularly cleaned and inspected to ensure all tines are present and not damaged. Tattooing ink must be frequently replenished to ensure slaps can be read.
A copy of the MLCSL carcase classification document is made available for every consignment of pigs to pass back to the producer, so insist on receiving this important document whether selling directly to the abattoir or through marketing groups.

ENSURE YOUR CARCASES ARE HANDLED BY MLCSL’s PIG CARCASE AUTHENTICATION AND VERIFICATION SERVICES
BPEX represents pig levy payers in England. BPEX is focused on enhancing the competitiveness, efficiency and profitability for English pig levy payers and driving demand for English pork and pig meat products in Britain and globally. BPEX is a subsidiary of the Agriculture and Horticulture Development Board.

BPEX has a specialised knowledge transfer (KT) team, created to transfer best practice ideas and guidance to the whole industry. As well as the ‘Work Instructions’ guidance on ‘Slapmarking Slaughter Pigs’ above, the KT team also produce a farm case study on ‘Piglet Slapmarking’ and work instructions on the ‘Loading and Unloading of Pigs’. Within the ‘Action for Productivity’ range of best practice titles ‘Increasing Uniformity of Finished Pigs’ and ‘Factors Affecting Killing Out Percentage’ will be of particular interest to those producers sending pigs to slaughter.

www.bpex.org.uk
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