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COMMISSION DECISION

of 15 April 2004

authorising methods for grading pig carcasses in the United Kingdom

(notified under document number C(2004) 1340)

(Only the English text is authentic)

(2004/370/EC)

(OJ L 116, 22.4.2004, p. 32)

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(2004/370/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Regulation (EEC) No 3220/84 of 13 November 1984 determining the Community scale for grading pig carcasses ⁽¹⁾, and in particular Article 5(2) thereof,

Whereas:

- (1) Article 2(3) of Regulation (EEC) No 3220/84 provides that the grading of pig carcasses must be determined by estimating the content of lean meat in accordance with statistically proven assessment methods based on the physical measurement of one or more anatomical parts of the pig carcass; the authorisation of grading methods is subject to compliance with a maximum tolerance for statistical error in assessment; this tolerance was defined in Article 3 of Commission Regulation (EEC) No 2967/85 of 24 October 1985 laying down detailed rules for the application of the Community scale for grading pig carcasses ⁽²⁾.
- (2) By Decision 88/234/EEC ⁽³⁾, the Commission authorised the use of five methods for grading pig carcasses in Great Britain and three methods in Northern Ireland.
- (3) The United Kingdom has requested the Commission to authorise the use of new formulae for the apparatus used for grading pig carcasses in Great Britain and has submitted the details required in Article 3 of Regulation (EEC) No 2967/85. An examination of this request has revealed that the conditions for using the new formulae are fulfilled.
- (4) Article 2 of Regulation (EEC) No 3220/84 lays down that Member States may be authorised to provide for a presentation of pig carcasses different from the standard presentation defined in the same Article where commercial practice or technical requirements warrant such a derogation.
- (5) In the United Kingdom commercial practice does not require that the tongue is removed from the pig carcass; this should be taken into account in adjusting the weight for standard presentation.
- (6) In accordance with Article 2(3) of Regulation (EEC) No 2967/85 and by way of derogation from Article 2(1) and (2) thereof, the weight of the cold carcass may be calculated by reference to pre-determined scales of absolute weight reductions if the reductions for individual weight classes correspond, as far as possible, to the reductions calculated in percentage terms; the United Kingdom has notified the determination of such a scale to the Commission.
- (7) No modification of the apparatus or grading methods may be authorised except by means of a new Commission Decision adopted in the light of experience gained; for this reason, the present authorisation may be revoked.

⁽¹⁾ OJ L 301, 20.11.1984, p. 1. Regulation last amended by Regulation (EC) No 3513/93 (OJ L 320, 22.12.1993, p. 5).

⁽²⁾ OJ L 285, 25.10.1985, p. 39. Regulation amended by Regulation (EC) No 3127/94 (OJ L 330, 21.12.1994, p. 43).

⁽³⁾ OJ L 105, 26.4.1988, p. 15. Decision last amended by Decision 2003/750/EC (OJ L 271, 22.10.2003, p. 24).

▼B

- (8) For the sake of clarity, a new Decision should be adopted and Decision 88/234/EEC should therefore be repealed.
- (9) The measures provided for in this Decision are in accordance with the opinion of the Management Committee for Pigmear,

HAS ADOPTED THIS DECISION:

Article 1

The use of the following methods is hereby authorised for grading pig carcasses pursuant to Regulation (EEC) No 3220/84 in the United Kingdom, excluding Northern Ireland:

- the apparatus termed ‘Intrascop (Optical Probe)’ and assessment methods related thereto, details of which are given in Part 1 of Annex I,
- the apparatus termed ‘Fat-O-Meater (FOM)’ and assessment methods related thereto, details of which are given in Part 2 of Annex I,
- the apparatus termed ‘Hennessy Grading Probe (HGP 4)’ and assessment methods related thereto, details of which are given in Part 3 of Annex I,
- the apparatus termed ‘CSB Ultra-Meater’ and the assessment method related thereto, details of which are given in Part 4 of Annex I,
- the apparatus termed ‘Fully automatic ultrasonic carcass grading’ (Autoform) and assessment methods related thereto, details of which are given in Part 5 of Annex I.

As regards the apparatus ‘CSB Ultra-Meater’ it is laid down that after the end of the measurement procedure it must be possible to verify on the carcass that the apparatus measured the values of measurement x_1 and x_2 on the site provided for in Annex I, Part 4, point 3. The corresponding marking of the measurement site must be made at the same time as the measurement procedure.

▼M1*Article 2*

The use of the following methods is hereby authorised for grading pig carcasses pursuant to Regulation (EEC) No 3220/84 in Northern Ireland:

- the apparatus termed ‘Intrascop (Optical Probe)’ and assessment methods related thereto, details of which are given in Part 1 of Annex II,
- the apparatus termed ‘Mark II Ulster Probe’ and assessment methods related thereto, details of which are given in Part 2 of Annex II,
- the apparatus termed ‘Hennessy Grading Probe (HGP 4)’ and assessment methods related thereto, details of which are given in Part 3 of Annex II,
- the apparatus termed ‘Fully automatic ultrasonic carcass grading’ (Autoform) and assessment methods related thereto, details of which are in Part 4 of Annex II.

▼B*Article 3*

Notwithstanding the standard presentation referred to in Article 2 of Regulation (EEC) No 3220/84, pig carcasses may be presented in the United Kingdom of Great Britain and Northern Ireland, with the tongue attached before being weighed and graded. In order to establish quotations for pig carcasses on a comparable basis, the recorded hot weight shall be reduced by 0,3 kg.

▼B*Article 4*

Notwithstanding the standard presentation referred to in Article 2(1) of Regulation (EEC) No 3220/84, the flare fat, the kidneys and the diaphragm need not be removed from pig carcasses before being weighed and graded. In order to establish quotations for pig carcasses on a comparable basis, the recorded hot weight shall be reduced:

- for pig carcasses up to 56 kg, by 0,7 kg
- for pig carcasses from 56,5 to 74,5 kg, by 1,1 kg
- for pig carcasses of 75 kg and over, by 1,6 kg.

Article 5

Notwithstanding Article 2(1) and (2) of Regulation (EEC) No 2967/85 the weight of the cold carcase shall be calculated in the United Kingdom of Great Britain and Northern Ireland, by reference to the scale of absolute reductions of the warm weight shown in Annex III.

Article 6

Modifications of the apparatus or of the assessment methods shall not be authorised.

Article 7

Decision 88/234/EEC is hereby repealed.

Article 8

This Decision is addressed to the United Kingdom of Great Britain and Northern Ireland.



ANNEX I

METHODS FOR GRADING PIG CARCASSES IN THE UNITED KINGDOM (EXCLUDING NORTHERN IRELAND)

PART I

Intrascop (Optical Probe)

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Intrascop (Optical Probe)'.
2. The apparatus shall be equipped with a hexagonal-shaped probe of a maximum width of 12 millimetres (and of 19 millimetres at the blade at the top of the probe) containing a viewing window and a light source, a sliding barrel calibrated in millimetres, and having an operating distance of between 3 and 45 millimetres.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 66,5 - 0,95x_1 + 0,068x_2$$

where:

- \hat{y} = the estimated percentage of lean meat in the carcass,
 x_1 = the thickness of back-fat (including rind) in millimetres, measured at 6 centimetres off the midline of the carcass at the last rib (measurement known as 'P₂'),

or

the average thickness of back-fat (including rind) in millimetres measured at 4 and 7,5 centimetres respectively off the midline of the carcass at the last rib (measurement known as '½ (P₁ + P₃)'),

- x_2 = the weight of the cold carcass in kilograms.

The formula shall be valid for carcasses weighing between 30 and 120 kilograms.

PART 2

Fat-O-Meater (FOM)

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Fat-O-Meater (FOM)'.
2. The apparatus shall be equipped with a probe of 6 millimetres diameter containing a photodiode of the Siemens SFH 950/960 type and having an operating distance of between 3 and 103 millimetres. The results of the measurements are converted into estimated lean meat content by means of a computer.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 63,4 - 0,51x_1 - 0,45x_3 + 0,18x_4$$

where

- \hat{y} = the estimated percentage of lean meat in the carcass,
 x_1 = the thickness of back-fat (including rind) in millimetres, measured at 6 centimetres off the midline of the carcass at the last rib (measurement known as 'P₂'),
 x_3 = the thickness of back-fat (including rind) in millimetres, measured at 6 centimetres off the midline of the carcass between the third and fourth last ribs (measurement known as 'rib-fat'),
 x_4 = the thickness of muscle in millimetres, measured at the same time and in the same place as x_3 (measurement known as 'rib-muscle').

The formula shall be valid for carcasses weighing between 30 and 120 kilograms.



PART 3

Hennessy Grading Probe (HGP 4)

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Hennessy Grading Probe (HGP 4)'.
2. The apparatus shall be equipped with a probe of 5,95 millimetres diameter (and of 6,3 millimetres at the blade of the top of the probe) containing a photodiode (Siemens LED of the type LYU 260-EO and photodetector of the type 58 MR) and having an operating distance of between 0 and 120 millimetres. The results of the measurements shall be converted into estimated lean meat content by means of the HGP 4 itself or a computer linked to it.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 62,8 - 0,51x_1 - 0,44x_3 + 0,19x_4$$

where

- \hat{y} = the estimated percentage of lean meat in the carcass,
- x_1 = the thickness of back-fat (including rind) in millimetres, measured at 6 centimetres off the midline of the carcass at the last rib (measurement known as 'P₂'),
- x_3 = the thickness of back-fat (including rind) in millimetres, measured at 6 centimetres off the midline of the carcass between the third and fourth last ribs (measurement known as 'rib-fat'),
- x_4 = the thickness of muscle in millimetres, measured at the same time and in the same place as x_3 (measurement known as 'rib-muscle').

The formula shall be valid for carcasses weighing between 30 and 120 kilograms.

PART 4

CSB Ultra-Meater

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'CSB Ultra-Meater'.
2. The apparatus shall be equipped with ultrasound head, ultrasound equipment, image generating board, computer, video recorder and printer.

The apparatus shall be equipped with a Pie Medical Netherlands 3,5 MHz scanner.

The distance from the marking point to the centre of the ultrasonic head shall be 12 cm.

The results of the measurements shall be converted into estimated lean meat content by means of the CSB Ultra-Meater apparatus itself.

3. The lean meat content of the carcass should be calculated according to the following formula:

$$\hat{y} = 65,1 - 1,158x_1 + 0,176x_2$$

where:

- \hat{y} = the estimated percentage of lean meat in the carcass,
- x_1 = the thickness of back-fat (including rind) in millimetres, measured at 6 cm off the dorsal midline of the carcass, between the third and fourth last ribs,
- x_2 = the thickness of muscle in millimetres, measured at the same time and in the same place as x_1 .

The formula shall be valid for carcasses weighing between 30 and 120 kilograms.

PART 5

Fully automatic ultrasonic carcass grading (Autofom)

1. Pig carcass grading shall be carried out using the apparatus termed Autofom (Fully automatic ultrasonic carcass grading).

▼B

2. The apparatus shall be equipped with 16 16,2 MHz ultrasonic transducers (Krautkrämer, SFK 2 NP), with an operating distance between transducers of 25 mm.

The ultrasonic data shall comprise measurements of back-fat thickness and muscle thickness.

The results of the measurements are converted into estimated lean meat content using a computer.

3. The carcass's lean meat content shall be calculated on the basis of 108 measurement points using the following formula:

$$\begin{aligned} \hat{y} = & 64,56076 - 0,011867x_1 - 0,037750x_2 - 0,013357x_3 - 0,011163x_4 - \\ & 0,021255x_5 - 0,006461x_6 - 0,016539x_7 - 0,026134x_8 - 0,011734x_9 - \\ & 0,010533x_{10} - 0,021250x_{11} - 0,011591x_{12} - 0,023174x_{13} - 0,035567x_{14} - \\ & 0,012220x_{15} - 0,010566x_{16} - 0,024556x_{17} - 0,015644x_{18} - 0,012601x_{19} - \\ & 0,024600x_{20} - 0,011233x_{21} - 0,010434x_{22} - 0,022287x_{23} - 0,015566x_{24} \\ & + 0,003953x_{25} + 0,004604x_{26} + 0,004438x_{27} + 0,004865x_{28} - 0,035444x_{29} - \\ & 0,022043x_{30} - 0,035690x_{31} - 0,043143x_{32} - 0,035588x_{33} - 0,034093x_{34} - \\ & 0,037165x_{35} - 0,027871x_{36} - 0,029070x_{37} - 0,028929x_{38} - 0,028884x_{39} - \\ & 0,028174x_{40} - 0,023148x_{41} - 0,025299x_{42} - 0,035816x_{43} - 0,044413x_{44} - \\ & 0,044408x_{45} - 0,034309x_{46} - 0,029252x_{47} - 0,018420x_{48} - 0,008756x_{49} - \\ & 0,012405x_{50} - 0,016834x_{51} - 0,019488x_{52} - 0,021442x_{53} - 0,023237x_{54} - \\ & 0,022466x_{55} - 0,033462x_{56} - 0,031548x_{57} - 0,031020x_{58} - 0,030049x_{59} - \\ & 0,029518x_{60} - 0,030063x_{61} - 0,049797x_{62} - 0,050145x_{63} - 0,049625x_{64} - \\ & 0,049249x_{65} - 0,047528x_{66} - 0,045669x_{67} - 0,026058x_{68} - 0,025250x_{69} - \\ & 0,023297x_{70} - 0,022976x_{71} - 0,022032x_{72} - 0,022040x_{73} - 0,015719x_{74} - \\ & 0,028318x_{75} - 0,017586x_{76} + 0,007988x_{77} + 0,008649x_{78} + 0,009642x_{79} \\ & + 0,009355x_{80} + 0,008768x_{81} + 0,006580x_{82} + 0,005336x_{83} + 0,008744x_{84} \\ & + 0,008690x_{85} + 0,008155x_{86} + 0,008398x_{87} + 0,008496x_{88} + 0,009162x_{89} \\ & + 0,009559x_{90} + 0,009805x_{91} + 0,009867x_{92} + 0,009476x_{93} + 0,008720x_{94} \\ & + 0,008490x_{95} + 0,008367x_{96} + 0,008861x_{97} + 0,007226x_{98} + 0,007774x_{99} \\ & + 0,008204x_{100} + 0,008142x_{101} + 0,007890x_{102} + 0,007522x_{103} + 0,008219x_{104} \\ & + 0,007665x_{105} + 0,005622x_{106} + 0,008785x_{107} + 0,008284x_{108} \end{aligned}$$

where:

\hat{y} = the estimated lean meat content of the carcass,

x_1, x_2, \dots, x_{108} are the variables measured by Autofom.

4. Descriptions of the measurement points and the statistical method can be found in Part II of the United Kingdom protocol forwarded to the Commission in accordance with Article 3(3) of Regulation (EEC) No 2967/85.

The formula shall be valid for carcasses weighing between 30 and 120 kilograms.

▼ **B**

ANNEX II

METHODS FOR GRADING PIG CARCASSES IN NORTHERN IRELAND

PART 1

Intrascop (Optical Probe)

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Intrascop (Optical Probe)'.
2. The apparatus shall be equipped with a hexagonal shaped probe of a maximum width of 12 millimetres (and of 19 millimetres at the blade at the top of the probe) containing a viewing window and a light source, a sliding barrel calibrated in millimetres and having an operating distance of between 3 and 45 millimetres.

▼ **M1**

3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 71,4802 - 0,83659 x$$

where:

\hat{y} = the estimated lean meat percentage in the carcass,

x = the thickness of the backfat (including rind) in millimetres measured at 6 centimetres off the midline of the carcass at the last rib (known as 'P2')

The formula shall be valid for carcasses weighing between 50 and 140 kilograms.

▼ **B**

PART 2

Mark II Ulster Probe

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Mark II Ulster Probe'.
2. The apparatus shall be equipped with an oval-shaped probe of a maximum width of 11 millimetres containing an infra-red light-emitting photodiode (TFK type TS-US 5402) with a peak wave-length frequency of 950 nm and a matching infra-red photodetector (TRW Optron type OP 500) and having an operating distance of between 0 and 50 millimetres. The results of the measurements shall be converted into estimated lean meat content by means of a computer.

▼ **M1**

3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 71,4384 - 0,84119 x$$

where:

\hat{y} = the estimated lean meat percentage in the carcass,

x = the thickness of the backfat (including rind) in millimetres measured at 6 centimetres off the midline of the carcass at the last rib (known as 'P2')

The formula shall be valid for carcasses weighing between 50 and 140 kilograms.

PART 3

Hennessy Grading Probe (HGP 4)

1. Grading of pig carcasses shall be carried out by means of the apparatus termed 'Hennessy Grading Probe (HGP 4)'.

▼ **M1**

2. The apparatus shall be equipped with a probe of 5,95 millimetres diameter (and of 6,3 millimetres at the blade of the top of the probe) containing a photodiode (Siemens LED of the type LYU 260-EO and photodetector of the type 58 MR) and having an operating distance of between 0 and 120 millimetres. The results of the measurements shall be converted into estimated lean meat content by means of the HGP 4 itself or a computer linked to it.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$\hat{y} = 71,5278 - 0,86638 x$$

where:

\hat{y} = the estimated lean meat percentage in the carcass,

x = the thickness of the backfat (including rind) in millimetres measured at 6 centimetres off the midline of the carcass at the last rib (known as 'P2')

The formula shall be valid for carcasses weighing between 50 and 140 kilograms.

PART 4

Fully automatic ultrasonic carcass grading (Autofom)

1. Pig carcass grading shall be carried out using the apparatus termed Autofom (Fully automatic ultrasonic carcass grading).
2. The apparatus shall be equipped with 16 16,2 MHz ultrasonic transducers (Krautkrämer, SFK 2 NP), with an operating distance between transducers of 25 mm.

The ultrasonic data shall comprise measurements of back-fat thickness and muscle thickness.

The results of the measurements are converted into estimated lean meat content using a computer.

3. The carcass's lean meat content shall be calculated on the basis of 127 measurement points using the following formula:

$$\hat{y} = b_0 + ip_1b_1 + ip_2b_2 + ip_3b_3 + \dots + ip_{127}b_{127}$$

where:

\hat{y} = the estimated lean meat content of the carcass,

ip_1 - ip_{127} = Input parameters of Autofom image analysis

b_0 - b_{127} = Constants from the model calibration

The 127 b -coefficients are, in order *IPI-IP127*:

- 1,6866978E-002	- 2,7395384E-002	- 1,9907279E-002	- 8,5862307E-003	- 1,7233329E-002
- 1,2928455E-002	- 7,2069578E-003	0,0000000E+000	0,0000000E+000	9,9210571E-003
- 2,7280254E-002	- 1,1866679E-002	- 1,6877903E-002	- 3,3714309E-002	- 2,2873893E-002
- 1,2976709E-002	- 1,9736953E-002	0,0000000E+000	- 1,0441692E-002	- 2,6023159E-002
- 1,6019909E-002	- 1,2085976E-002	- 2,0802582E-002	- 1,2004912E-002	4,9544591E-003
2,1012272E-003	3,5626963E-003	5,4210355E-003	2,8231265E-003	0,0000000E+000
3,4462682E-003	4,9613826E-003	3,1486694E-003	0,0000000E+000	3,3405393E-003
0,0000000E+000	0,0000000E+000	1,0592665E-003	0,0000000E+000	0,0000000E+000
2,3835478E-003	0,0000000E+000	- 2,3957171E-002	- 1,6251475E-002	0,0000000E+000
- 2,1446949E-002	0,0000000E+000	- 2,4741126E-002	- 2,2376098E-002	- 1,6962735E-002
- 2,8594572E-002	- 1,9001560E-002	- 2,7471537E-002	- 3,2565221E-002	- 3,1170983E-002
- 2,9708274E-002	- 2,7283320E-002	- 2,5577871E-002	- 3,2280222E-002	- 3,1662315E-002
- 3,3039205E-002	- 3,2290529E-002	- 3,0902216E-002	- 2,9116826E-002	- 2,5646536E-002
- 2,3514079E-002	- 2,7472775E-002	- 2,6122212E-002	- 2,3694078E-002	- 2,7969513E-002
- 2,8660055E-002	- 2,8413385E-002	- 3,2624107E-002	- 3,2517981E-002	- 3,1576648E-002
- 3,1543616E-002	- 3,1162977E-002	- 3,0734278E-002	- 3,4127805E-002	- 3,4164313E-002
- 3,4327772E-002	- 3,4017213E-002	- 3,3313580E-002	- 3,3459395E-002	- 2,4075206E-002
- 2,5336761E-002	- 2,6048595E-002	- 2,6499119E-002	- 2,6947299E-002	- 2,7433341E-002

▼ **M1**

- 3,1328205E-002	- 3,1818397E-002	- 2,7329659E-002	6,0837399E-003	6,8703182E-003
7,7951970E-003	8,3265398E-003	7,6311678E-003	6,6542262E-003	5,8027613E-003
8,4376512E-003	8,3114961E-003	8,2320096E-003	8,0569442E-003	7,7763004E-003
7,6648975E-003	7,3420489E-003	7,2652618E-003	7,1755257E-003	7,1458751E-003
7,1670651E-003	6,9467919E-003	7,0396927E-003	7,2869365E-003	5,7384889E-003
7,6241307E-003	7,3343012E-003	6,9868541E-003	6,6073379E-003	6,9390922E-003
6,3295597E-003	6,0446505E-003	1,0994689E-002	9,2938738E-003	4,4189114E-003
4,3836362E-003	4,6389205E-003			

The b_0 -coefficient is 6,3457577E+001

4. Descriptions of the measurement points and the statistical method can be found in Part II of the United Kingdom protocol forwarded to the Commission in accordance with Article 3(3) of Regulation (EEC) No 2967/85.

The formula shall be valid for carcasses weighing between 50 and 140 kilograms.

▼**B***ANNEX III***SCALE OF REDUCTIONS APPLICABLE TO THE WEIGHT OF HOT PIG CARCASSES IN THE UNITED KINGDOM***(in kilograms)*

Carcase weight range (hot)	Deduction to be applied according to the interval between the sticking of the pig and the weighing of the carcase			
	0 to 45 minutes	46 to 180 minutes	181 to 330 minutes	> 330 minutes
up to 56 kg	1,0	0,5	0,5	0
56,5 to 74,5 kg	1,5	1,0	0,5	0
75 kg and over	2,0	1,5	0,5	0