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COMMISSION DECISION
of 2 September 1992
authorizing methods for grading pig carcases in Denmark

(Only the Danish text is authentic)

(92/469/EEC)

(OJ No L 265, 11. 9. 1992, p. 39)

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Commission Decision of 27 July 1994 (94/564/EC)	L 215	25	20. 8. 1994
Commission Decision of 5 September 1996 (96/551/EC)	L 236	49	18. 9. 1996
Commission Decision of 8 April 1998 (98/283/EC)	L 128	68	30. 4. 1998

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THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to Council Regulation (EEC) No 3220/84 of 13 November 1984 determining the Community scale for grading pig carcases ([1]), as last amended by Regulation (EEC) No 3577/90 ([2]), and in particular Article 5 (2) thereof,

Whereas Article 2 (3) of Regulation (EEC) No 3220/84 provides that the grading of pig carcases 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 carcase; whereas the authorization of grading methods is subject to compliance with a maximum tolerance for statistical error in assessment; whereas this tolerance has been 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 carcases ([3]);

Whereas the use of the apparatus termed 'Klassificeringscenter' ('KC'), the apparatus termed 'Fat-O-Meater/Manuel Klassificering' ('FOM/MK') and the apparatus termed 'Ultra-FOM' has been authorized for Denmark by Commission Decision 91/358/EEC ([4]);

Whereas the Danish Government has requested the Commission to authorize with regard to the apparatus 'KC' and the apparatus 'FOM/MK' the use of new formulae for the calculation of the lean meat content of pig carcases and has submitted the information required in Article 3 of Regulation (EEC) No 2967/85; whereas new developments in the slaughtering process require the authorization of methods for the grading of dehided pig carcases; whereas an examination of this request has revealed that the conditions for authorizing the said grading methods are fulfilled;

Whereas a new Decision should be adopted to include all three methods for the sake of clarity; whereas, as a consequence, Decision 91/358/EEC should be repealed;

Whereas Article 2 of Regulation (EEC) No 3220/84 lays down that Member States may be authorized to provide for a presentation of pig carcases different to the standard presentations defined in the same Article where commercial practice or technical requirements so warrant;

([1]) OJ No L 301, 20. 11. 1984, p. 1.
([2]) OJ No L 353, 17. 12. 1990, p. 23.
([3]) OJ No L 285, 25. 10. 1985, p. 39.
([4]) OJ No L 193, 17. 7. 1991, p. 37.

Whereas in Denmark the technical requirements relating to the use of the grading method and, consequently, commercial practice, necessitate the removal of the kidneys, the flare fat and the diaphragm; whereas this should be taken into account in adjusting to the weight for standard presentation;

Whereas the measures provided for in this Decision are in accordance with the opinion of the Management Committee for Pigmeat,

HAS ADOPTED THIS DECISION:

Article 1

96/551/EC

The use of the following methods is hereby authorized for grading pig carcases pursuant to Regulation (EEC) No 3220/84 in Denmark:

— the apparatus termed 'Klassificeringscenter' (KC) and the assessment method related thereto, details of which are given in Part 1 of the Annex,

— the apparatus termed 'Fat-O-Meater/Manuel Klassificering' (FOM/MK) and the assessment method related thereto, details of which are given in Part 2 of the Annex,

— the apparatus termed 'Uni-Fat-O-Meater' (Unifom) and the assessment method related thereto, details of which are given in Part 3 of the Annex,

— the apparatus termed 'Fully automatic ultrasonic carcase grading' (Autofom) and the assessment method related hereto, details of which are given in Part 4 of the Annex.

Article 2

92/469/EEC

Notwithstanding the standard presentation referred to in Article 2 of Regulation (EEC) No 3220/84, pig carcases may be dehided before being weighed and graded, whereby the forecast are cut just above the *os carpi accessorium* and the hindfeet just below the *calcaneum*. Dehided carcases have to be graded by the apparatus 'KC' or the apparatus 'FOM/MK', using the special formulae provided for in Part 1 and 2 of the Annex. The warm carcase weight (excluding flare fat, kidneys and diaphragm) of those carcases is calculated according to the following formula:

warm carcase weight = 3,19 + 1,064 ¢ weight of the dehided carcase

~~*Article 3*~~

94/564/EC – deleted

Article 3

92/469/EEC – 94/564/EC

Modification of the apparatus or of the assessment methods (measurement sites or formulae) shall not be authorized.

Article 4

94/564/EC

Decision 91/358/EEC is hereby repealed.

Article 5

94/564/EC

This Decision is addressed to the Kingdom of Denmark.

ANNEX 92/469/EEC

METHODS FOR GRADING PIG CARCASES IN DENMARK

PART I

Klassificeringscenter (KC)

1. Grading of pig carcases shall be carried out by means of the apparatus termed 'Klassificeringscenter' ('KC').

2. The apparatus shall be equipped with nine probes of six millimetres each containing a photodiode (Siemens SFH 950–LD242 II) and a photodetector (Siemens SFH 960–PB 103) and having an operating distance of between one and 180 millimetres.

   The results of the measurements are converted into estimated lean meat content by means of a central unit.

3. The lean meat content of the carcase shall be calculated on the basis of 10 measurements taken from seven measuring-points as are indicated in paragraph 4 and according to the following formulae:

   (a) carcases with skin on:

$$\hat{Y} = 62{,}941 - 0{,}1706\,x_1 - 0{,}0818\,x_2 - 0{,}1645\,x_3 - 0{,}1964\,x_4 - 0{,}1005\,x_5 - 0{,}2553\,x_6 - 0{,}1813\,x_7 + 0{,}0853\,x_8 + 0{,}0452\,x_9 + 0{,}0513\,x_{10} + 0{,}0427\,x_{11}$$

96/551/EC

   (b) dehided carcases: 92/469/EEC

$$\hat{Y} = 58{,}4049 - 0{,}0380\,x_1 - 0{,}0304\,x_2 - 0{,}1660\,x_3 - 0{,}1741\,x_4 - 0{,}1819\,x_5 - 0{,}1809\,x_6 - 0{,}1722\,x_7 + 0{,}0513\,x_8 + 0{,}0522\,x_9 + 0{,}0394\,x_{10} + 0{,}0440\,x_{11}$$

   where:

   $\hat{Y}$ = the estimated percentage of lean meat in the carcase.

4. The measurement points are:

   x_1 = the thickness of backfat (1) in millimetres, measured at the centre of the third cervical vertebra, at 10,5 cm off the midline of the carcase,

   x_2 = the thickness of backfat (1) in millimetres, measured at the centre of the fourth cervical vertebra, at 7 cm off the midline of the carcase,

   x_3 = the thickness of backfat (1) in millimetres, measured between the fourth and fifth hindmost thoracic vertebrae, at 3 cm off the midline of the carcase,

   x_4 = the thickness of backfat (1) in millimetres, measured between the second and third hindmost thoracic vertebrae, at 7 cm off the midline of the carcase,

   x_5 = the thickness of backfat (1) in millimetres, measured between the first lumbar vertebra and the last thoracic vertebra, at 6 cm off the midline of the carcase,

   x_6 = the thickness of backfat (1) in millimetres, measured 4 cm before the fore edge of the pubic bone, at 7 cm off the midline of the carcase,

   x_7 = the thickness of backfat (1) in millimetres, measured at the fore edge of the pubic bone, at 11 cm from midline of the carcase,

   x_8 = muscle thickness in millimetres, measured between the fourth and fifth hindmost thoracic vertebrae, at 3 cm off the midline of the carcase,

   x_9 = muscle thickness in millimetres, measured between the second and third hindmost thoracic vertebrae, at 7 cm off the midline of the carcase,

   x_{10} = muscle thickness in millimetres, measured between the first lumbar vertebra and the hindmost thoracic vertebra, at 6 cm off the midline of the carcase,

   x_{11} = warm carcase weight in kilograms (excluding flare fat, kidneys and diaphragm).

   The formulae shall be valid for carcases weighing between 50 and 110 kg. 96/551/EC

(1) Including rind in the case of carcases with skin on.

PART 2

92/469/EEC

Fat-O-Meater/Manuel Klassificering (FOM/MK)

1. Grading of pig carcases shall be carried out by means of the apparatus termed 'Fat-O-Meater/Manuel Klassificering' ('FOM/MK')

2. The apparatus shall be equipped with a probe of six millimetres diameter containing a photodiode (Siemens SFH 950–LD 242 II) and a photodetector (Siemens SFH 960-BP 103) and having an operating distance of between one and 94 millimetres.

   The results of the measurements are converted into estimated lean meat content by means of a central unit.

3. The lean meat content of the carcase shall be calculated according to the following formulae:

   (a) carcases with skin on:

$$\hat{Y} = 65{,}29152 - 0{,}2106379\, x_1 - 0{,}61076\, x_2 + 0{,}1128888\, x_3 + 0{,}02276837\, x_4$$

96/551/EC

   (b) dehided carcases:

92/469/EEC

$$\hat{Y} = 60{,}0 - 0{,}4288\, x_1 - 0{,}3619\, x_2 + 0{,}1792\, x_3;$$

   where:

   $\hat{Y}$ = the estimated percentage of lean meat in the carcase,

   x_1 = the thickness of backfat ([1]) in millimetres, measured at 8 cm off the midline of the carcase, between the third and fourth last lumbar vertebrae,

   x_2 = the thickness of backfat ([1]) in millimetres, measured at 6 cm off the midline of the carcase, between the third and fourth last ribs,

   x_3 = the thickness of muscle in millimetres, measured at the same time and in the same place as x_2

   x_4 = arm carcase weight in kilograms (excluding the flare fat, the kidneys and the diaphragm).

   The formulae shall be valid for carcases weighing between 50 and 110 kg.

96/551/EC

PART 3

96/551/EC

Uni-Fat-O-Meater (UNIFOM)

1. Grading of pig carcases shall be carried out by means of the apparatus termed 'Uni-Fat-O-Meater' (Unifom).

2. The apparatus is the same as the apparatus described under point 2 of Part 2. However, Unifom differs from FOM/MK with regard to computer and software for the interpretation of the reflection profile from the optical probe. Furthermore, Unifom is not connected with the weighing instrument, so that the slaughter weight can be included directly in the calculation of the lean meat percentage.

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

$$\hat{Y} = 68{,}386166 - 0{,}1240656\, x_1 - 0{,}8717984\, x_2 + 0{,}1088299\, x_3$$

98/283/EC

   where:

96/551/EC

   $\hat{Y}$ = the estimated percentage of lean meat in the carcase,

   x_1 = the thickness of backfat ([1]) in millimetres, measured at 8 cm off the midline of the carcase, between the third and fourth last lumbar vertebrae,

   x_2 = the thickness of backfat ([1]) in millimetres, measured at 6 cm off the midline of the carcase, between the third and fourth last ribs,

   x_3 = the thickness of muscle in millimetres, measured at the same time and in the same place as x_2.

([1]) Including rind in the case of carcases with skin on.

The formula shall be valid for carcases weighing between 50 and 110 kg. 96/551/EC

PART 4

Fully automatic ultrasonic carcase grading (Autofom)

1. Grading of pig carcases shall be carried out by means of the apparatus 'Fully automatic ultrasonic carcase grading' (Autofom).

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

   The ultrasonic data cover three major parts of the carcase and comprise three fat thicknesses and one muscle depth. The remaining parameters are related to the above parameters.

   The results of the measurements are converted into estimated lean mean content by means of a central data-processing unit.

3. The lean meat content of the carcase shall be calculated on the basis of 127 individual measuring points according to the following formula:

$$\hat{Y} = 59{,}24000168 - 0{,}030622402\,x_1 - 0{,}0559959\,x_2 - 0{,}025685901\,x_3 - 0{,}0115708\,x_4 - 0{,}0364976\,x_5 - 0{,}019477801\,x_6 - 0{,}0157021\,x_7 - 0{,}028626302\,x_8 - 0{,}0132835\,x_9 - 0{,}012896401\,x_{10} - 0{,}026035002\,x_{11} - 0{,}00185023\,x_{12} - 0{,}0136233\,x_{13} - 0{,}048098601\,x_{14} - 0{,}0204149\,x_{15} - 0{,}0178324\,x_{16} - 0{,}041277599\,x_{17} - 0{,}020299699\,x_{18} - 0{,}0206571\,x_{19} - 0{,}040948\,x_{20} - 0{,}014101701\,x_{21} - 0{,}0245975\,x_{22} - 0{,}048922502\,x_{23} - 0{,}018260401\,x_{24} + 0{,}0050389\,x_{25} + 0{,}0103042\,x_{26} + 0{,}0022657\,x_{27} + 0{,}00243124\,x_{28} + 0{,}008291731\,x_{29} + 0{,}00578348\,x_{30} - 0{,}0017511\,x_{31} + 0{,}00803249\,x_{32} - 0{,}000173431\,x_{33} - 0{,}00513116\,x_{34} + 0{,}00469745\,x_{35} + 0{,}000372995\,x_{36} - 0{,}00014972\,x_{37} - 0{,}00113224\,x_{38} + 0{,}000434787\,x_{39} + 0{,}00121559\,x_{40} - 0{,}00312394\,x_{41} - 0{,}00203788\,x_{42} + 0{,}25331402\,x_{43} - 0{,}0197071\,x_{44} + 0{,}0249134\,x_{45} + 0{,}0494201\,x_{46} + 0{,}00279633\,x_{47} + 0{,}053343497\,x_{48} + 0{,}022081601\,x_{49} + 0{,}051484603\,x_{50} + 0{,}039685801\,x_{51} - 0{,}00879017\,x_{52} - 0{,}00845072\,x_{53} - 0{,}00725005\,x_{54} - 0{,}0103406\,x_{55} - 0{,}021988701\,x_{56} - 0{,}025504801\,x_{57} - 0{,}026593\,x_{58} - 0{,}067017801\,x_{59} - 0{,}068600304\,x_{60} - 0{,}062353503\,x_{61} - 0{,}049126402\,x_{62} - 0{,}070018396\,x_{63} - 0{,}076502904\,x_{64} - 0{,}071316704\,x_{65} - 0{,}0104453\,x_{66} - 0{,}0116967\,x_{67} - 0{,}000348352\,x_{68} + 0{,}015280101\,x_{69} - 0{,}00395203\,x_{70} - 0{,}026739201\,x_{71} - 0{,}035513401\,x_{72} - 0{,}00254834\,x_{73} - 0{,}00432901\,x_{74} - 0{,}0049929\,x_{75} - 0{,}00576441\,x_{76} - 0{,}00676548\,x_{77} - 0{,}00772101\,x_{78} - 0{,}042503901\,x_{79} - 0{,}048328102\,x_{80} - 0{,}055129498\,x_{81} - 0{,}059772301\,x_{82} - 0{,}0645658\,x_{83} - 0{,}067458406\,x_{84} + 0{,}016674001\,x_{85} + 0{,}0148772\,x_{86} + 0{,}013334701\,x_{87} + 0{,}010916\,x_{88} + 0{,}00617342\,x_{89} + 0{,}00379121\,x_{90} - 0{,}034854501\,x_{91} - 0{,}075036302\,x_{92} - 0{,}0275991\,x_{93} + 0{,}000509895\,x_{94} - 0{,}000547192\,x_{95} - 0{,}00133919\,x_{96} + 0{,}000919671\,x_{97} - 0{,}000180694\,x_{98} - 0{,}00297095\,x_{99} - 0{,}001185\,x_{100} - 0{,}00388737\,x_{101} - 0{,}00329167\,x_{102} - 0{,}00305314\,x_{103} - 0{,}00351509\,x_{104} - 0{,}00314768\,x_{105} - 0{,}00292778\,x_{106} - 0{,}00229802\,x_{107} - 0{,}00209384\,x_{108} - 0{,}00177929\,x_{109} - 0{,}00121272\,x_{110} - 0{,}000435302\,x_{111} + 0{,}000315525\,x_{112} + 0{,}00126716\,x_{113} + 0{,}00265209\,x_{114} + 0{,}0147121\,x_{115} + 0{,}0239079\,x_{116} + 0{,}025629202\,x_{117} + 0{,}0204865\,x_{118} + 0{,}019831302\,x_{119} + 0{,}0182009\,x_{120} + 0{,}015869601\,x_{121} + 0{,}0250687\,x_{122} + 0{,}025464201\,x_{123} + 0{,}025771502\,x_{124} + 0{,}020633401\,x_{125} + 0{,}020213\,x_{126} + 0{,}0225557\,x_{127}$$

   where:

   $\hat{Y}$ = the estimated percentage of lean meat in the carcase.

4. The description of the measurement points and the description of the statistical method are laid down in the Danish Protocol, Part II, submitted to the Commission under the terms of Article 3 (3) of Commission Regulation (EEC) No 2967/85.

   The formula shall be valid for carcases weighing between 50 and 110 kg.