An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Beef Carcase Classification

David Donnelly

9th January 2019

Carcase Classification Division

- Classification of Beef (and Pigs – 6 factories)
- 33 Beef factories (23 mechanical / 10 manual)
- 5 full time Classification DS's
- 1 AS (Supervisor)

- 2 X HQ Staff - Price Reporting
- 1 X Assistant Inspector – price reporting and classification
- 1 X Inspector

Overview of Presentation

Progress Report

Strand 2

#16 Publishing Inspection Results

#17 Report on Mechanical Classification Modification Trial

#18 Appeal System for Manual Grading Factories

- Appealing Mechanically Classified carcasses

#16 Inspection Results

Key Points

- DAFM to publish inspection details every 2 months
- Inspection numbers in excess of legal requirements in 2019
- EU Inspection 2019

#16 Inspection Results

COMMISSION IMPLEMENTING REGULATION (EU) 2017/1184

Article 2 **On-the-spot checks**

On-the-spot checks shall be carried out in all slaughterhouses applying compulsory carcass classification. The performance of the qualified classifiers and the applied grading methods are checked on the spot and without prior warning by a body independent of the slaughterhouses, the classification agencies and the qualified classifiers.

No legal requirement to publish data on inspection results.

#16 Inspection Results

Every 2 months from January 2020, DAFM will report its Beef Carcase Classification inspection results on the Department Website.

Each report will have a running total of inspection data on carcass conformation and fat accuracy, percentages and bias.

A summary inspection report for the 12 months of 2019 will also be published as above.

#16 Inspection Results – reporting inspections 2020

			Conformation		Fat	
2020	**Number of inspections**	**Number of carcasses inspected**	**% of the maximum points awarded**	**Bias Limits +/-0.3**	**% of the maximum points awarded**	**Bias Limits +/-0.6**
Jan / Feb						
Mar / Apr						
May / June						
July / Aug						
Sept / Oct						
Nov / Dec						

#16 Inspection Results – method of calculating scores

Accuracy	**Conformation**	**Fat**
No Difference	10	10
1 sub class*	6	9
2 sub classes*	-9	6
3 sub classes*	-27	-13
> 3 sub classes *	-48	-30
*Counted as either under scored or over scored		
Bias	**Limits**	
Conformation	0.30	-0.30
Fat	0.6	-0.6

A worked example of Accuracy for 100 carcasses for Conformation:

80 carcasses with No Error		
	(80 x 10)	800 points
15 ± 1 Subclass		
	(15 x 6)	90 points
5 ± 2 subclasses		
	(5 x -9)	-45 points
Total		845 points
Max Available		1000 points

Score 84.5%

A worked example of Bias for 100 carcasses

80 carcasses with No Error	0
10 * 1 Subclass overscored	+10
7 * 1 Subclass underscored	-7
2 * 2 subclasses overscored	+4
1 * 2 Subclasses underscored	-2
Total	+5
Total Carcasses	100

Bias +0.05

#16 Inspection Results - Legal Requirement

On-the-spot checks shall be performed …at least **twice every three months**

Each on-the-spot check shall relate to **at least 40 carcasses** selected at random

#16 Inspection Results - 2019

33 Factories – 23 Mechanical (90%) 10 Manual (10%)

613 Inspections- Average of 18 inspections per factory

8 / year is the legal requirement

54,179 Carcasses Inspected - Average of 88 per inspection

40 carcasses per inspection is the legal requirement

#16 Inspection Results – EU Audit

UNION INSPECTION COMMITTEE ON BEEF CARCASS CLASSIFICATION

INSPECTION IN IRELAND

25 TO 27 JUNE 2019

OBJECTIVES OF THE INSPECTION

- The objective of the inspection was to evaluate the application of the arrangements relating to the Union scales for the classification of beef carcasses
- the recording of market prices according to those classification scales.

#16 Inspection Results – EU Audit

OVERALL CONCLUSIONS

According to the above mentioned findings during the inspection, the Committee is of the opinion that the implementation of beef carcass classification and price reporting in Ireland can be considered as fully satisfactory.

#17 Report on Mechanical Classification Modification Trial

Key Points

- Trial supervised by DAFM with Independent external monitoring and verification
- Definitive grade taken for comparative purposes is the median grade of 3 classification officers
- Modified classification machine exceeds legal requirements
- Modified machine is more accurate than current machine

#17 Report on Mechanical Classification Modification Trial

COMMISSION DELEGATED REGULATION (EU) 2017/1182

Article 10 **Authorisation of automated grading methods for beef and sheep carcasses**

Member States may grant a licence authorising beef and sheep automated grading methods that consist of an automated grading technique (**apparatus**) and an **equation** (formula)

#17 Report on Mechanical Classification Modification Trial – Legal requirement

a. Member States shall designate an **independent body** which shall analyse the results of an **authorisation** test.

b. **Modifications** of the technical specifications of an authorised beef or sheep automated grading method shall be **approved by the competent authorities** subject to proof that such modifications result in a level of accuracy that at **least fulfils the minimum requirements for an authorisation test**.

c. Member States shall **inform the Commission** of any such modifications for which they have given their approval.

#17 Report on Mechanical Classification Modification Trial

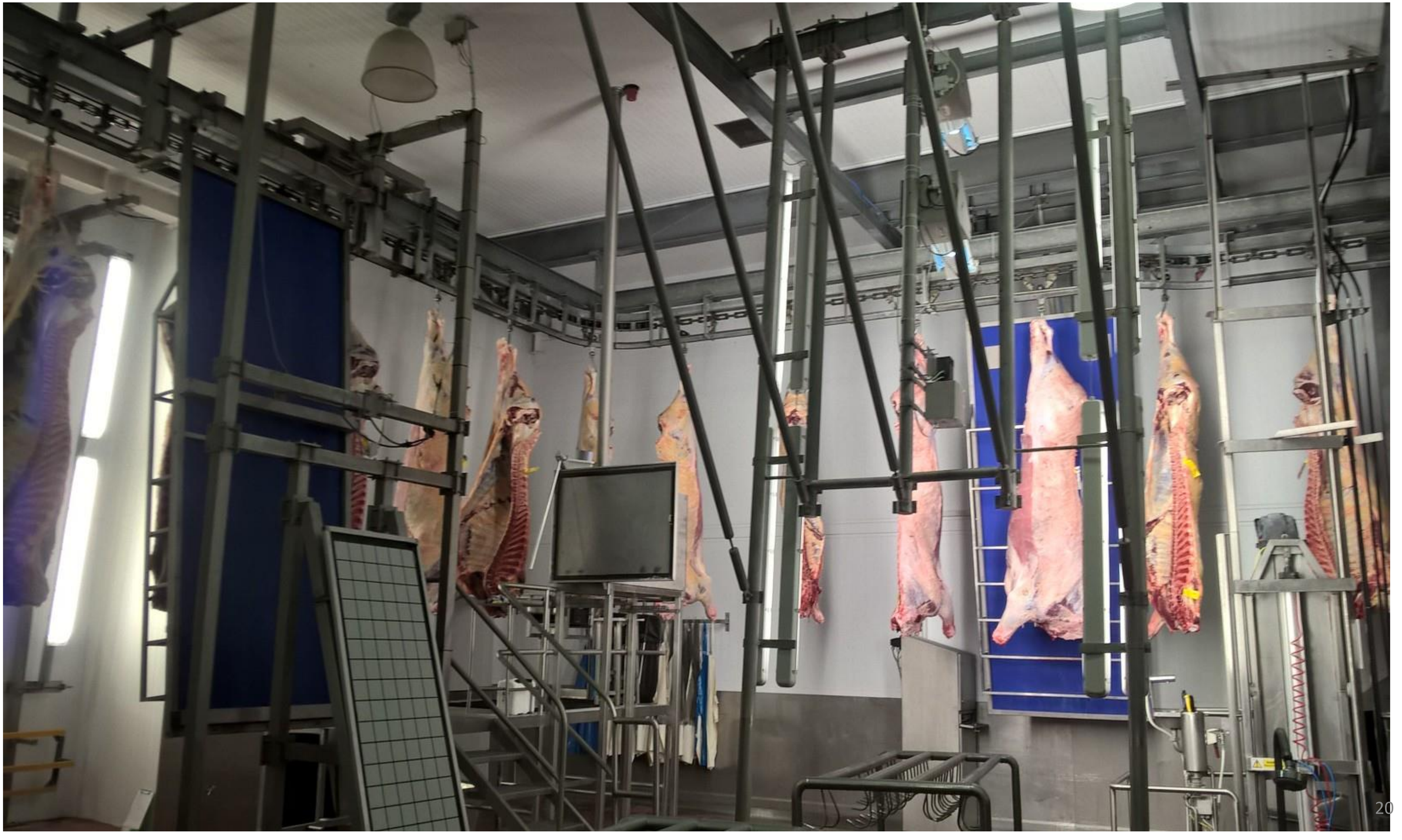
a. **Independent body –** Mr. Ing. P.A.C.M. (Piet) van de Lindeloof

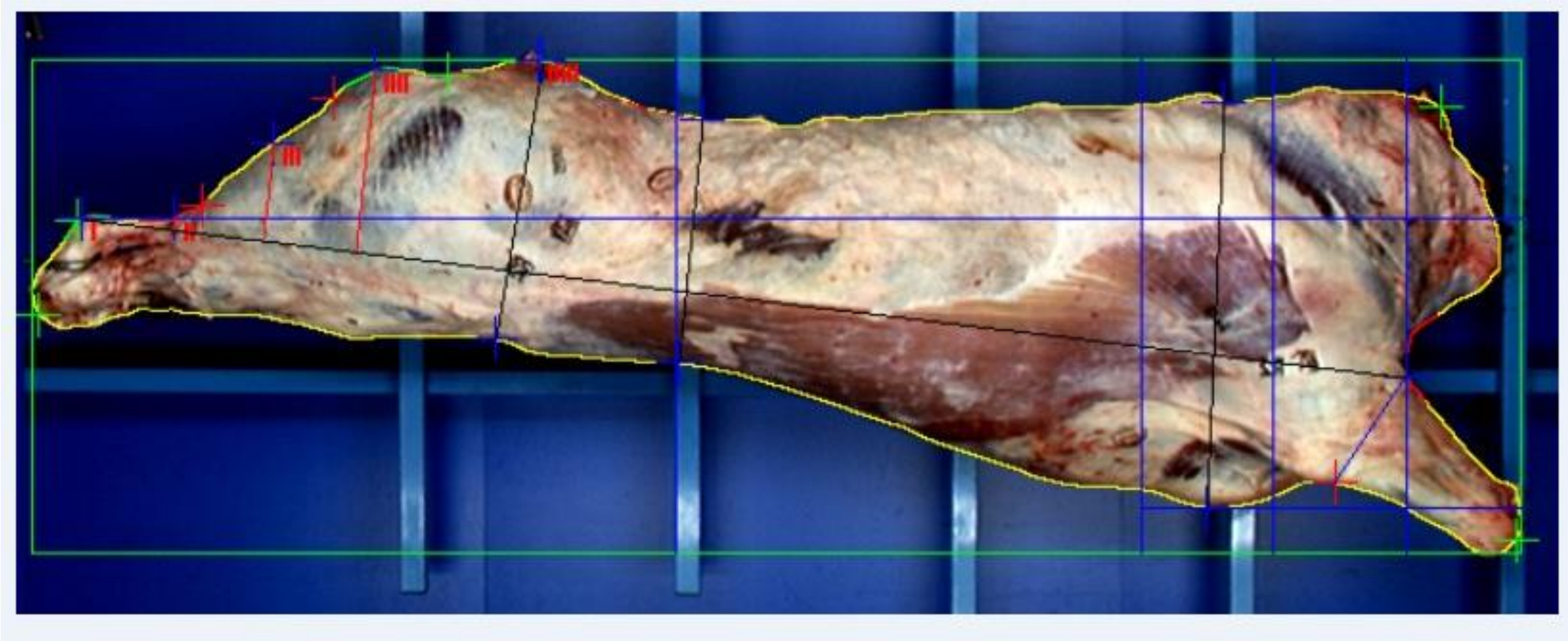
- Delegated classification expert at DG AGRI of the European Commission (2002-2004)
- Member of the European Union Inspection Committee (1992-2007)
- Inspector, manager and trainer in the field of classification, price reporting and market support measures in The Netherlands

#17 Report on Mechanical Classification Modification Trial - procedure

- In 2018, **2,431** carcasses were classified by three Irish classification experts in order to **calibrate** the modified machine (digital camera and LED lights)

- The modified technology was subsequently **trialled** by the same 3 classifiers during a validation phase ending in February 2019 on **2,100** carcasses.





#17 Report on Mechanical Classification Modification Trial

- The grades from the **modified** classification machine were calculated using the existing equations from the original **2002** trial.

- The performance of the modified machine was compared against the **median classification result** from a team of three Irish classification officers.
- The classification grade for comparative purposes is always the **median** grade of the 3 classification officers

#17 Report on Mechanical Classification Modification Trial

Results using the **modified** technology and 2002 equations

		Conformation			**Fat cover**		
	Number	**Points/%**	**Bias**	**Limits**	**Points/%**	**Bias**	**Limits**
Legal Requirement	600	>60.0	0.0	*+/- 0.3*	>60.0	0.0	*+/- 0.6*
Slaney Trial	2100	85.2	0.01		93.3	-0.05	

#17 Report on Mechanical Classification Modification Trial

For a modification trial it is no longer necessary to compare the performance of the modified machine with any existing classification system.

However, for transparency, the performance of the existing machine was also compared against the median classification result from the team of three Irish classification officers.

#17 Report on Mechanical Classification Modification Trial

Results using the **existing** system and 2002 equations

		Conformation			**Fat cover**		
	Number	**Points/%**	**Bias**	**Slope**	**Points/%**	**Bias**	**Slope**
Total sample	2100	84.1	0.17	+0.97	85.7	-0.14	1.11

#17 Report on Mechanical Classification Modification Trial

- With a view to identifying the **optimum suite of equations** that would give the **greatest accuracy** using the modified technology, E+V examined the use of the current 2002 equations and also equations from a second authorisation trial conducted in **2014**.

- A **combination of equations** provided the optimum result. This resulted when **two of the 2002 equations** were substituted with two equations from the authorisation trial held in 2014 (the equations responsible for determining conformation in **categories D and E**).

#17 Report on Mechanical Classification Modification Trial

Results using the **modified technology** and an **optimum suite** of equations

		Conformation			**Fat cover**		
	Number	**Points/%**	**Bias**	**Slope**	**Points/%**	**Bias**	**Slope**
Total sample	2100	90.3	0.01	0.99	93.3	-0.05	0.89

#17 Report on Mechanical Classification Modification Trial

Summary of all 3 scenarios…

		Conformation			Fat cover		
	Number	**Points/%**	**Bias**	**Slope**	**Points/%**	**Bias**	**Slope**
Current Machine – 2002 EQ's	2100	84.1	0.17	+0.97	85.7	-0.14	1.11
Modified Machine – 2002 EQ's	2100	85.2	0.01	1.00	93.3	-0.05	0.89
Modified Machine – Optimum EQ's	2100	90.3	0.01	0.99	93.3	-0.05	0.89

#17 Report on Mechanical Classification Modification Trial

- The modified machine has a higher number of carcasses where the machine and the classification officers has the **same grade**

- Using the modified machine, the number of **differences of '1 subclass' is reduced**

i.e. the number of times when the machine and the panel differed by 1 sub class (Under or Overscored)

#17 Report on Mechanical Classification Modification Trial

- Using the modified machine, the number of **differences of '2 subclasses' is reduced**

- The Bias of the modified machine is closer to the optimum figure of **Zero**.

- A feature of a mechanical classification system is that there will be differences between classifiers and the machine.

- The modified technology looks to reduce the number of differences.

Conformation	Accuracy	Bias	No Difference	1 Sub Class	2 Subclasses	3 subclasses
Current Machine – 2002 Equations	84.1	0.17	1331	752	17	0
Modified Machine – 2002 Equations	85.2	0.01	1432	642	23	3
Modified Machine – Optimum Equations	90.3	0.01	1620	472	8	0
Total Number of Carcasses			2100			

Fat	Accuracy	Bias	No Difference	1 Sub Class	2 Subclasses	3 subclasses
Current Machine – 2002 Equations	85.7	-0.14	949	964	174	13
Modified Machine – 2002 Equations	93.3	-0.05	1250	792	55	3
Modified Machine – Optimum Equations	93.3	-0.05	1250	792	55	3
Total Number of Carcasses			2100			

#17 Report on Mechanical Classification Modification Trial

Final conclusion

In my professional opinion this trial satisfies all legislative requirements and I can confirm that the Irish authorities can proceed to authorise the use of the modified technology trialled.

Ing. P.A.C.M. (Piet) van de Lindeloof

#17 Report on Mechanical Classification Modification Trial

c. Article 10

Authorisation of automated grading methods for beef and sheep carcasses

Member States shall inform the Commission of any such modifications for which they have given their approval

<u>Notification sent in December 2019</u>

#17 Report on Mechanical Classification

<u>Data used in the trial</u>

- Complete Data set is held by DAFM
- Data Processed and analysed by Mr Piet van de Lindeloof and DAFM
- Raw Data not released to Industry or other stakeholders so as not to compromise the independence of the analysis

- DAFM Supervised Trial
- Independent verification provided in accordance with the legislation

#17 Report on Mechanical Classification

<u>Ownership of Data used in the trial</u>

3 sets of Data involved

1. owned by Slaney Foods and
2. Grades from a Classification Machine owned by E+V
3. Grades from the 3 DAFM Classification officers

#17 Report on Mechanical Classification

Legal requirement to publish raw data?

Within two months upon completion of the authorisation test, Member States shall ***provide the Commission with the information*** *referred to in Part C of Annex IV.*

- No legislative Requirement to Publish raw data in the MS concerned

#18 Appeal System for Manual Grading Factories

Key Points

- Procedure in place – details online
- DAFM Appeal *de novo*
- Extend to mechanically classified carcasses?

#18 Appeal System for Manual Grading Factories

<u>Manual Carcase Classification Appeals Procedure</u>

- Any supplier wishing to appeal a carcase classification must **firstly appeal to the factory management** where the carcase was slaughtered.
- Management must then have the carcase re-classified by a **second licensed factory grader**.
- Where a supplier is still not satisfied with this second classification result, the supplier may seek a **DAFM appeal by informing the factory**.

#18 Appeal System for Manual Grading Factories

- Reclassification is only possible when the carcasses are **unaltered**

i.e. not hip hung, quartered or subjected to post scales trimming which would alter the original conformation or fat cover on the carcase.

- Where a carcase is **hip hung, reclassification is limited to fat cover**

- Carcass classification appeals constitute a **classification de novo** of the carcass, i.e. it supersedes any previous grade applied.

Appeals of Mechanically Classified carcasses?

ANNEX IV A (V) of REGULATION (EU) No 1308/2013 states:

- ***Slaughterhouses*** *….shall take measures to ensure that all carcasses or half-carcasses bovine animals aged eight months or more slaughtered in such slaughterhouses [...]are classified and identified in accordance with the Union scale.*

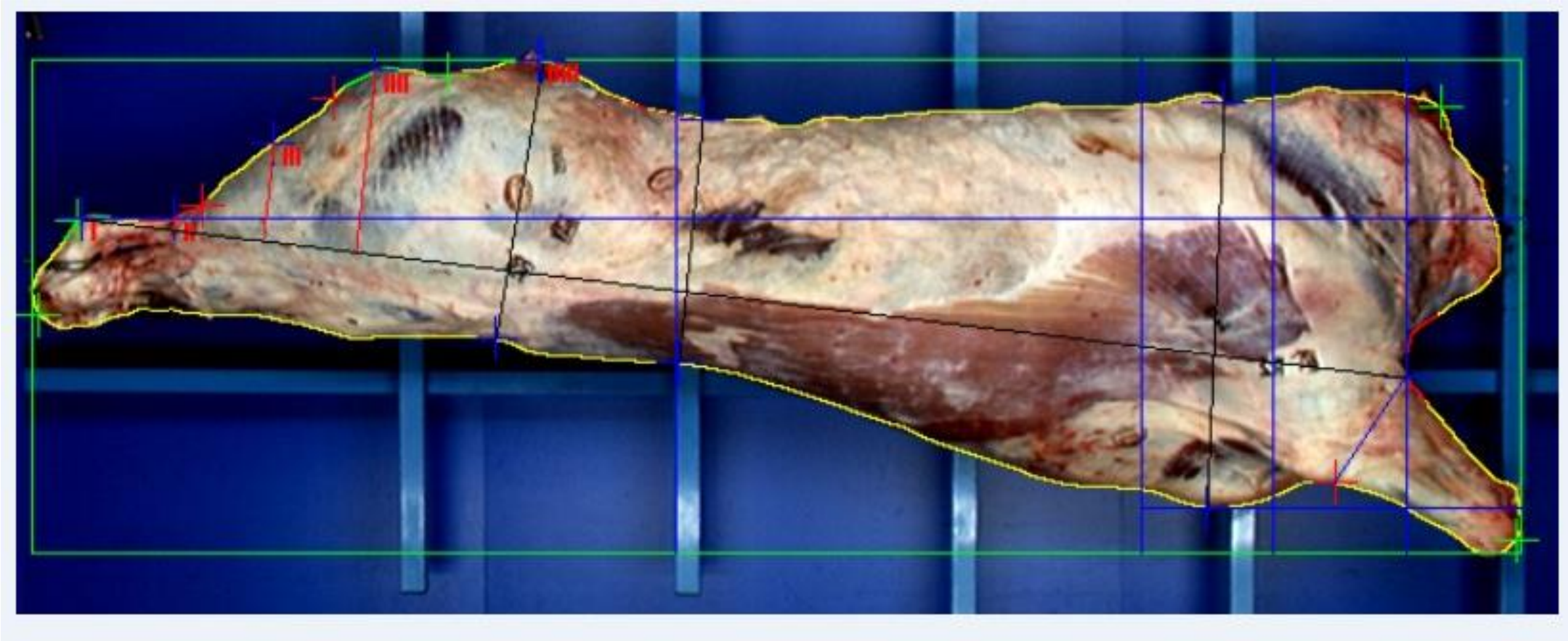
- *Appeal to slaughterhouse*

- *Not a DAFM Scheme*

Appeals of Mechanically Classified carcasses?

- Neither REGULATION (EU) 2017/1182 or 2017/1184 provides for **any appeal mechanism** in relation to the classification of carcasses by mechanical graders.

- Machine classification makes use of Video Image Analysis to carry out various measurements of the carcase.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II
III
IIII
IIIII

Appeals of Mechanically Classified carcasses?

SI 254/2019, Regulation 13 (5) states at point 12:

- *A person shall not alter, or cause or permit another person to alter, a classification derived from an automatic grading technique except with the prior written approval of a supervisory officer.*

This regulation prohibits an operator from changing the grade assigned by mechanical classification methods.

It is an offence under the legislation if a Factory alters a grade other than in this way.

Appeals of Mechanically Classified carcasses?

An **objective** system:

- Has high reliability,
- is neutral,
- observable,
- quantifiable,
- consistent,
- repeatable and provable.

Appeals of Mechanically Classified carcasses?

A **subjective** classification is:

- relative to the person making it,
- it is an expression of their opinion, perception and understanding and
- will differ from person to person.

Appeals of Mechanically Classified carcasses?

- The Mechanical Classification System is trained / calibrated by human graders
- *The performance of a machine is not tested on a small number of carcases owned by a particular farmer*
- *The assessment of the performance of the mechanical classification system is carried out across a large number of carcases removing any individual carcase subjectivity*

Appeals of Mechanically Classified carcasses?

- During the DAFM inspection process, examining 100 carcasses ensures a more **representative, reliable and quantifiable assessment** of the performance of the machine.

- Differences between a classification officer and the machine will exist however

- Hence the situation that these machines may operate within a legal tolerance rather that an accuracy requirement of 100%

Appeals of Mechanically Classified carcasses?

Appeals in Other Jurisdictions?

<u>Northern Ireland</u>

In NI, EU regulations are given effect through: The Carcase Classification and Price Reporting Regulations (Northern Ireland) 2018. No. 216 AGRICULTURE

In NI and in GB, there is also no appeals mechanism against grades assigned by mechanical classification methods and at present they do not have any plans to introduce an appeals system.

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Beef

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Beef Policy

Schemes and Programmes

Beef Carcase Classification and Price Reporting

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Beef Taskforce

Thank You…