



Meat Standards Australia™

Standards Manual

Section 8: Processor



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1 Introduction

The Meat Standard Australia (MSA) Standards Manual is divided into a number of sections. Each section is a standalone document that is issued and amended independently of each other section.

Australian Meat Industry Language and Standards Committee (AMILSC) are custodians of the Meat Standards Australia (MSA) Standards (refer to Section 1: Foreword and Introduction, page 3).

This section outlines the Processor requirements for MSA.

All sections of the Meat Standard Australia (MSA) Standards Manual must be used collectively. Certain sections may not be applicable for a specific business, operation, facility or activity. It is the user's responsibility to determine and justify why a sections does not apply.

1.1 Instructions for control of this document

This Standards Manual, available online from, is a controlled document.

Updates to this Standard will occur from time to time. All printed and/or saved copies are uncontrolled and may not be the latest version.

1.2 Owner confirmation

The owner or controller, as registered with the Authorised Authority, shall be informed of any updates relating to the information contained in this Standard. Attached to any updates regarding this Standard will be a form for notification of changes to the owner or controller of the Standard.

1.3 Amendments and updates

Amendments to this standard will be issued by way of a formal amendment notification where required.

1.4 Document control confirmation

CHANGE HISTORY

| Date | Change Description | Author | Issue No: |
|---------------------------------|--|--------------------|-----------|
| 3 rd May 2013 | Initial Draft | Janine Lau | 0.1 |
| 18 th July 2013 | Second Draft | Janine Lau | 0.2 |
| 03 rd September 2013 | Third Draft | Alana McEwan Brown | 0.3 |
| 27 th November 2013 | Initial Release | Janine Lau | 1.0 |
| 20 th March 2015 | Second Release inclusion of Led Steer pathway and tamper evident label requirements. | Alana McEwan Brown | 2.0 |
| 25 th November 2015 | Third Release inclusion of tamper evident label requirements in Sheep/lamb specific sections of the standard. | Alana McEwan Brown | 3.0 |
| 15 th November 2016 | Fourth Release – standard updated to remove Ausmeat Meat Colour as an MSA minimum requirement, Updated training modules for Beef in line with current and historical versions. Removed grade code 6 as an input option for Meets MSA fails company specification, format change only to 8.5 Minim MSA requirements regarding transport – no content change in this area. | Alana McEwan Brown | 4.0 |

8 Processing Enterprises

8.1 Quality management system

Each Enterprise where required by an Authorised Authority, as defined by their Licence application, must incorporate these standards and maintains a Quality Management System..

An Authorised Authority must approve all Quality Management System documentation, including the Quality Management System Manual. The Enterprise must ensure that the documentation is reviewed from time to time to conform to any variations in these Standards or an Authorised Authority's requirements.

The Enterprise must establish and maintain a program of internal quality audits of the Enterprise's MSA procedures as documented in their Enterprise's approved Quality Management System.

The Enterprise must establish procedures for corrective and preventative action to be implemented in response to identified or emerging problems. Detailed records of actions taken and follow up activities must be maintained.

All Enterprises must be AUS-MEAT accredited.

8.2 Planning and design

The MSA program requirements of the Enterprise should be integrated into existing Enterprise's quality system manuals and procedures. It is not a requirement to establish a separate Quality Management System Manual.

8.3 Quality management system elements

The Quality Management System Manual must contain procedures or information that addresses the following elements;

8.3.1 Management responsibility

The Enterprise must define and document the responsibility, authority and inter-relations of personnel who manage, perform and verify work relating to the Enterprise's MSA systems.

8.3.2 Contract review

The Enterprise must establish and maintain documented procedures for reviewing contracts relating to its MSA systems and MSA product. A detailed record of each review must be maintained.

8.3.3 Document control

The Enterprise must establish and maintain documented procedures for controlling specified documents relating to its MSA systems. A list of controlled MSA documents as specified by an Authorised Authority must be maintained.

8.3.4 Product identification and traceability

The Enterprise must establish and maintain documented procedures to ensure that practices relating to its MSA systems and MSA product are accurately identified and traceable. The method of identification must be recorded.

8.3.5 Process control

The Enterprise must establish and maintain documented procedures to ensure that processes, which directly affect the Enterprise's MSA systems and MSA product, are carried out under controlled conditions.

8.3.6 Inspection and testing

The Enterprise must establish and maintain documented procedures for inspection and testing of practices relating to the Enterprise's MSA systems and MSA product.

8.3.7 Control of non-conforming product

The Enterprise must establish and maintain documented procedures to ensure that non-conforming product is prevented from unintended use or dispatch. All MSA non-conformances must be documented.

8.3.8 Corrective and preventative action

The Enterprise must establish and maintain documented procedures to ensure that effective corrective and preventative action is taken concerning the Enterprise's MSA practices.

8.3.9 Handling, storage, preservation, packaging and delivery

The Enterprise must establish and maintain documented procedures to ensure that MSA product is correctly handled, stored, preserved, packaged and delivered in accordance with the requirements of the MSA program.

8.3.10 Quality records

The Enterprise must establish and maintain documented procedures to ensure records, which verify compliance with MSA program requirements and effective operation of the Quality Management System, are maintained.

The following records must be kept in accordance with the specified minimum mandatory time frames;

- a) Vendor declarations – 6 months; and
- b) Training records – 2 years.

8.4 MSA Coordinator and Trained Operatives

The Enterprise must appoint one or more MSA Coordinators, who are management representatives, with the responsibility and authority to ensure that the integrity of the MSA program is maintained in the Enterprise.

The MSA Coordinator and Operatives must be trained, as determined by an Authorised Authority and demonstrate, to the satisfaction of the Authorised Authority, competence in all aspects of the MSA program, which are relevant to the Enterprise.

8.4.1 Internal quality audits

Each Enterprise must establish and maintain documented procedures to ensure that its MSA practices are internally audited. A record of each internal Audit must be maintained for a minimum of 2 years.

8.4.2 Duties of the MSA Coordinator

The MSA Coordinator must;

- a) Ensure that the Enterprise conforms with all MSA program requirements;
- b) Ensure that the Enterprise has in place a documented, approved Quality Management System which addresses all requirements of MSA program;
- c) Ensure that a program of internal Audits takes place to verify the effectiveness of the Enterprise's Quality Management System procedures;
- d) Ensure that all MSA product produced by the Enterprise, which does not conform to a customer's requirements, is rejected, re-worked to conform or redirected to another customer (provided that the product is in conformity with that customer's specifications);
- e) Without limiting paragraph 8.4.3, ensure maintenance of an approved training program and records to ensure that sufficient trained staff are available to undertake work when required for the MSA program;
- f) Verify the competence of trained personnel who are operating in the Enterprise's MSA system;
- g) Ensure there are sufficient staff trained to perform the Enterprise's MSA program requirements;
- h) Maintain skill levels and training to ensure that new technology is incorporated as appropriate;
- i) Ensure that at all times a sufficient number of persons are on duty at the Enterprise to ensure correct administration of the Quality Management System;
- j) Ensure that all Quality Management System records are correct and complete, and that action is promptly taken to remedy any defects in them;
- k) Ensure that the identity of described product produced by the Enterprise is maintained;
- l) Ensure that prompt action is taken in accordance with all notifications from an Authorised Authority; and
- m) Accompany, or delegate an appropriately qualified staff member to assist the Auditor during an audit.

8.4.3 Duties of Operatives performing MSA related activities

For each Enterprise sector, in which an Operative is responsible, they are required to:

- a) Assist the MSA coordinator to ensure that the Enterprise conforms to MSA program requirements;
- b) Ensure that descriptions used and measurements taken are accurate;
- c) Ensure that the Quality Management System is maintained;
- d) Ensure that carcass assessments, tickets, carton labels and markings and other wraps are in accordance with MSA program requirements and customer requirements; and
- e) Ensure that all MSA product produced by the Enterprise, which does not conform to MSA specifications, is brought to the attention of the MSA coordinator.

8.4.4 Maintenance of skills

The ongoing maintenance of skills, required to maintain the MSA program, will be verified by audits of the Enterprise's MSA procedures. If an Authorised Authority considers that a MSA Coordinator

ceases to demonstrate the levels of competency required for the position it may suspend the person's approval to act as an MSA Coordinator.

8.4.5 Trained personnel

The Enterprise must provide sufficient trained personnel to ensure that all requirements of the MSA program are effectively maintained and that all aspects are in place to properly administer the Quality Management System.

Details of the training and staff records must be identified in the Quality Management System Manual and approved by an Authorised Authority.

8.5 MSA Minimum requirements and responsibilities - beef

The following Standards shall be adhered to:

- a) Vendor declaration checked against lot to ensure accuracy of information;
- b) Water available on arrival at the abattoir;
- c) Groups of cattle not to be mixed in lairage;
- d) No drafting of cattle on plant;
 - a. Reduction in size of the Eligible consignment mob (or splitting) for purposes of yarding (not to be confused with drafting or mixing);
 - b. Once split, these animals may remain as separate mobs or re-joined as the original mob; and
- e) Lot or animal identification to be maintained at all times throughout the production process;

8.5.1 Direct consignment

- a) Slaughter within 48 hours from the property of dispatch providing the following requirements are met for road transport;
 - a. The total truck transport time from property dispatch to arrival at the abattoir is not to exceed 36 hours;
 - b. Up to a 12 hour rest period can occur during this 36 hour period, however, if a 12 hour rest period is taken then the maximum time cattle can spend on a truck is 24 hours; and
 - c. This pathway allows for up to 12 hours in lairage prior to slaughter;
- b) Slaughter by day after dispatch for all other methods of transport

8.5.2 Saleyard pathway

- a) Cattle shall be slaughtered within 36 hours after dispatch from the farm or property;
- b) A 5 CMQ4 point deduction will be made for livestock exchange or saleyard consignment groups within the grading model;
- c) The saleyard field in the MSA grading software is to be 'Y'
- d) Milk fed vealers consigned through livestock exchange or saleyard facilities are ineligible for MSA grading.

8.5.3 Slaughter floor

- a) During breaks or breakdowns, MSA eligible carcasses are not to remain stationary on the slaughter floor for a time period extending longer than 20 minutes, unless evidence can be shown that there is no adverse effect on the rate of pH and temperature decline; and

- b) Slaughter process is required to maintain the temperature and pH decline relationship within the required 'window'. Refer to National Accreditation Standards: Appendix 6 – Accelerated Conditioning.
- c) All pH decline results must be sent electronically to MLA within 48 hours after the decline was conducted.

8.5.4 Led Steer Pathway

In addition to MSA cattle eligibility requirements:

- a) All carcasses need to meet minimum requirements for MSA grading for pHu and rib fat.
- b) All animals to be slaughtered within 24 hours of dispatch from the Showground
- c) All animals are to have unrestricted access to water in lairage.
- d) A 5 CMQ4 point deduction will be made for Led Steer groups, applied by having the saleyard field in the MSA grading software set to 'Y'.
- e) The MSA member number of the Showground, provided on the MSA vendor declaration sent from the showground, is to be used when uploading the data.

8.5.5 Training requirements

| Enterprise training and other requirements. | MSA Licensed |
|--|--------------|
| <i>Onsite training conducted prior to August 2015</i> | |
| 1B. Cattle handling | √ |
| 2B. MSA Pre- slaughter requirements | √ |
| 3B. MSA Beef slaughter systems | √ |
| 4B. pH measurement and decline in beef* | √ |
| 5B. MSA Beef chiller requirements | √ |
| 6. MSA grading** (Graders only) | √ |
| 7B. MSA Beef boning room requirements. | √ |
| 8B. MSA Beef load out requirements. | √ |
| <i>Onsite training conducted from August 2015</i> | |
| <u>B1. MSA Pre-Slaughter Requirements</u> | <u>√</u> |
| <u>B2. Processing MSA Beef</u> | <u>√</u> |
| <u>B3. MSA Product Integrity</u> | <u>√</u> |
| <u>B4. PH Decline and Measurement Beef*</u> | <u>√</u> |
| <i>Other Training & licensing requirements</i> | |
| 9. MSA Meat Science *** (Coordinator only) | √ |
| Initial plant survey | √ |
| Technology updates | √ |
| In-plant monitoring | √ |

| | |
|-------------------------------|---|
| MSA coordinator | √ |
| QA system including QA manual | √ |

* National unit of competency MTMP405B - Conduct and validate pH temperature declines to Meat Standards Australia standards

** National unit of competency MTMP3095B - Grade beef carcasses using Meat Standards Australia standards

*** National unit of competency MTMP404B - Apply meat science

8.5.6 Beef carcass specifications

Only Graders, that are current as defined by AUS-MEAT Chiller Assessment criteria and MSA Grader criteria, are permitted to assign MSA grades. Minimum requirements for carcasses to be MSA eligible include:

- a) All AUS-MEAT chiller assessment pre-conditions are to be adhered to;
- b) Carcasses may be assessed at any ribbing site from 5th to 13th rib. The rib at which the measurement was performed must be nominated in company records;
- c) Ultimate pH (pH_μ) less than or equal to 5.70;
- d) Loin temperature less than 12°C;
- e) Minimum subcutaneous rib fat depth of 3mm or p8 fat depth of 5mm;
- f) Even fat distribution over all major primals; and
- g) Hide puller damage for areas greater than 10cm x 10cm on a single primal are excluded.

Beef grading data must be sent within 24 hours of conclusion of grading to the Authorised Authority.

8.5.7 Chiller assessment measuring equipment

All measurement equipment used for MSA grading at an Enterprise must be approved.

- a) Where MSA grading is performed, with the assistance of Chiller Assessment Measurement Equipment, the operator must be a current AUSMEAT Chiller Assessors and current MSA grader
- b) Approved Quality Systems which monitor the use, maintenance and performance of Chiller Assessment Measurement Equipment must be in place at each Licensed Enterprise
- c) The hardware and, software versions, and system settings of Chiller Assessment Measurement Equipment must only be those currently approved by AUS-MEAT and/or MLA.
- d) A copy of the relevant approval and conditions must be held on file and be available to the Enterprise CASO, MSA Coordinator, operator and AUS-MEAT Auditors.
- e) MLA reserves the right to apply to AUS-MEAT to remove or suspend any Chiller Assessment Measurement Equipment Approvals granted.
- f) Enterprises need to demonstrate, through audit evidence, compliance to National Accreditation Standard 5.12.
- g) MLA endorses the AUS-MEAT Operating Conditions and Audit and Correlation Standards outlined in 5.12 of the National Accreditation Standards.

8.6 MSA Minimum requirements and responsibilities – lamb and sheepmeat

The Enterprise must only permit trained staff to coordinate MSA Sheepmeat product, and must ensure that each operative meets the criteria set out below.

8.6.1 Direct consignment

- Total time off feed not greater than 48 hours before slaughter;
- Time spent in lairage yards at processing plant to be not greater than 24 hours;
- Livestock must have access to water at all times;
- If livestock are carried over in a holding paddock and fed at the processing plant, the processor must demonstrate that animals through this pathway meet pH/ temperature window requirements and pHu requirements as outlined in these Standards ;
- No sick or injured animals to be included;
- Maintain livestock identification
- Livestock are not to be mixed in lairage

8.6.2 Saleyard pathway

- Animals through this pathway meet pH/ temperature window requirements as outlined in these Standards.

8.6.3 Slaughter floor

- Head only electrical stunning;
- Maintain carcass identification;
- Slaughter process to maintain a temperature and pH relationship within the required 'window';
- All pH decline results must be sent electronically to MLA no later than 48 hours after the decline was conducted;
- The time off feed to slaughter will be taken from the National Vendor Declaration.

8.6.3.1 Controlled pH decline requirements

These requirements are designed to minimise meat toughening through cold and heat shortening, plus allow for the increase of tenderness through ageing. Each Enterprise must incorporate procedures within its approved Quality System to achieve a pH/temperature window in accordance with the table below;

| MSA Sheepmeat pH/temperature window | | |
|-------------------------------------|------------------------|--|
| Hang Method | Temperature @pH6 | Minimum ageing before consumption / display/sale |
| Achillies Tendon | 18 to 35C ^a | 5 days |
| Achillies Tendon | 8 to 18C ^b | 10 days |
| Tender-Stretch | 8 to 35C | 5 days |

a- best and most reliably achieved with electrical stimulation

b- likely scenario if not using electrical stimulation

8.6.3.2 MSA Sheepmeat pH/temperature testing procedures

The following monitoring is required for a controlled pH decline approval. They are:

1. Monthly Monitoring: is a complete test of the rate of decline involving pH hourly (stimulated) and two hourly (unstimulated) temperature measurements on a minimum of 20 carcasses per category.

A significant change in sheep type is defined as a group with different;

- a) Weights
- b) Fat depths

8.6.3.2.1 pH temperature readings

Monthly monitoring

- a) A satisfactory result will show that 90% of the carcasses have passed through the appropriate window showing in the above table.

Carried over livestock

- a) If livestock are held over in a holding paddock and fed at the processing plant, the processor must demonstrate that the animals through this pathway meet the pH/Temperature window.
- b) 90% of the carcasses in the decline must comply with pH/temperature window.

Saleyard pathway

- a) Each Saleyard pathway must demonstrate that the livestock can meet the MSA Sheepmeat pH/temperature window requirement's.
- b) 90% of the carcasses in the decline must comply with pH/temperature window.

8.6.3.2.2 Corrective Action

MSA must be notified of the trends and the results of the pH Decline together with any recommended changes to the Controlled pH Decline System. The Enterprise will then take the agreed action to correct the pH fall.

In the case of non-MSA carcasses, the enterprise will modify the temperature-pH regimes to adjust the rate of pH fall so that the carcasses achieve the pH window requirements.

In the case of (MSA and non-MSA), a further pH decline will be carried out after each modification so that the results can be validated.

8.6.4 Training requirements

| Enterprise training and other requirements. | Licensed Processor |
|---|--------------------|
| 1. Sheep handling & MSA Pre Slaughter requirements (S1) | √ |
| 2. MSA Sheep Slaughter systems (S2) | √ |
| 3. pH measurements and decline in sheep and MSA chiller requirements (S3) | √ |
| 4. MSA Meat science (9) | √ |
| 5. MSA Sheepmeat integrity (S5) | √ |
| 7. Technology updates | √ |
| 8. In-plant monitoring | √ |
| 9. MSA coordinator | √ |

8.6.5 Sheepmeat compliance data

Submission of grading compliance data must be sent electronically to MLA within 48 hours.

A reason for non-compliance is a coded observation for which the carcass has met or failed an MSA requirement. The reasons for non-compliance are as follows;

- 0 - Meets all MSA requirements
- 1 - Under minimum carcass weight
- 2 - Inadequate Fat distribution (min Fat Class 2)
- 3 - CWT + fat
- 4 - Company spec/Brand Spec
- 5 - Pelt removal damage
- 6 - Excessive trim
- 7 - Animal Health Condemnations

8.7 MSA carcass identification

MSA compliant carcasses are to be clearly identified with the relevant MSA stamp or approved identification for accurate segregation.

For butcher bodies, relevant MSA eating quality information must also accompany the carcasses.

8.8 Boning room

Sufficient segregation must be maintained at boning room changeovers to ensure integrity.

8.9 MSA primal identification

MSA inserts, tamper evident labels, or printed packaging issued, and/or approved by an Authorised Authority may only be applied at the Enterprise to which the inserts were issued.

MSA Certified primals must be identified with approved printing on or approved tamper evident label on, or approved MSA inserts within, vacuum bags.

Enterprises using approved tamper evident labels to identify MSA Certified Primals must adhere to the following requirements:

- Each Label must:
 - be tamper evident
 - have the establishment number, where the product originated, printed on it
 - have a unique sequential identification code printed on it
 - have minimum of 47mm x 36mm dimensions
 - have removal perforations and label 'face cuts'

For an example of an acceptable tamper evident label refer to 8.17.2 MSA Generic Tamper Evident label

- The Enterprise must:
 - have an effective system for recording the sequence numbers used for any production, including a minimum of, the first number used, the last number used and the production date.
 - have an effective system, for control of use and traceability of Labels, documented within their Quality Management System manual and approved by MSA prior to implementation.

- All use of tamper evident labels must be approved by MLA Prior to implementation

An Authorised Authority may withdraw from the Enterprise, for a period determined by the Authorised Authority, all MSA inserts, tamper evident labels and/or approved identification issued by the Authorised Authority.

Without limiting the circumstances in which this action may be taken, it may be taken where the Authorised Authority considers that the MSA integrity of the product is at risk.

8.10 MSA description on carton labels

MSA carton product, intended to be sold as MSA graded, must display the approved label on the end panel. AUS-MEAT Accredited Enterprises Licensed in the MSA program are required to include the MSA grade, cooking method/s and required days ageing or release date within the carton label. The MSA information is additional to existing mandatory and optional trade description information and will be subject to verification during routine AUS-MEAT audits.

Prior label approval will be required from AUS-MEAT before MSA information can be included in any trade description approved additions in existing labels.

8.11 Cutting / fabrication / preparation

MSA Product must at all times be cut, fabricated and prepared in accordance with the MSA Standards. If there is any failure to do so, product must not be sold as MSA Certified Product.

Where the Enterprise prepares MSA Product for consumption, the Enterprise should prepare the MSA Certified Product as follows:

| Cook method | Software descriptions | Alternate label descriptions | Recommended cut dimensions | Cook Style | Beef | Sheepmeat |
|-------------|-----------------------|------------------------------|---|------------|------|-----------|
| Grill | GRL | GRL, Grill | Beef – minimum 21 mm Sheepmeat – minimum 15 mm | Dry | X | X |
| Roast | RST | RST, Roast | Whole primal | Dry | X | X |
| Stir Fry | SFR | SFR, Stir Fry | 10mm(W) x 10mm(H) x 75mm(L) | Dry | X | X |
| Thin Slice | TSL | TSL 2mm, Thin Slice 2mm | 2mm thin slice | Dry | X | |
| Slow Cook | SC | CASS, Cass, Casserole | 20mm cube | Wet | X | X |
| Corn | CN | CRN, Corn | Whole primal | Wet | X | |
| Yakiniku | YAK | YAK, Yakiniku | 4mm thin slice | Dry | X | |
| Shabu Shabu | SSB | SSB, Shabu Shabu | 2mm thin slice | Wet | X | |

8.12 Dispatch / sale

Where MSA products are delivered and sold as MSA Product, Authenticating Documentation identifying the eating quality outcome must accompany the product.

Where Authenticating Documentation is lost or damaged, product must not be sold as MSA Product.

MSA Licensees are required to include their MSA Licence number on all Authenticating Documentation where MSA Certified Product is being listed.

If the enterprise is not distinguishing between eating quality outcomes, for example MSA 3, 4 or 5, the Authenticating Documentation must still state MSA and product description.

Without limiting this, MSA Carton Labels or MSA Plant Carton Labels must be attached to the cartons and all primals and portions must include MSA inserts, approved tamper evident label or approved printing.

Where MSA primals are sold to an MSA Supplier, Authenticating Documentation must be supplied with the product together with details of the appropriate cook method for the grade and ageing requirements.

Where MSA Product is sold to a Wholesaler, Processor or Retailer which is not an MSA Supplier, it must not be sold as MSA Product.

Where branded products are underpinned by MSA and the MSA Trade Mark is used, these products must contain only MSA product.

8.13 Feedback requirements

8.13.1 Beef

a) Producer feedback

Carcases that have been presented for MSA grading shall have MSA feedback provided to the vendor (producer). There are two methods that are used to provide Feedback to the vendor (producer), these are:

1. The processing enterprise shall provide to the vendor (Producer) the minimum MSA requirements in addition to the mandatory AUS-MEAT feedback, in addition
2. A producer can login to the myMSA.com.au web site and access full MSA feedback.

The minimum MSA requirements to include are:

- a. Kill Date
- b. Body Number
- c. Sex
- d. Hump Height
- e. Ossification
- f. MSA Marbling
- g. AUS-MEAT Marbling
- h. Subcutaneous rib fat
- i. pHu

- j. HSCW (AUS-MEAT Mandatory information)
- k. P8 measurement (AUS-MEAT Mandatory information)
- l. Bruise Score (AUS-MEAT Mandatory information)
- m. Dentition (AUS-MEAT Mandatory information)

Information available through the myMSA.com.au web site includes:

- a. Kill Date
- b. Body Number
- c. RFID Number
- d. Hang Method
- e. Ossification
- f. MSA Marbling
- g. AUS-MEAT Marbling
- h. AUS-MEAT Meat Colour
- i. AUS-MEAT Fat Colour
- j. Milk Fed Vealer
- k. Subcutaneous rib fat
- l. Saleyard
- m. HGP
- n. Rinse
- o. HWCW
- p. Tropical Breed Content
- q. Hump Height
- r. Sex
- s. Eye Muscle Area
- t. pHu
- u. Temperature
- v. Fat Distribution
- w. Hide Puller Damage
- x. MSA Index

8.14 Other requirements

The Enterprise must comply with and do all things necessary or desirable to give effect to the requirements set out. In the event of any inconsistency between these Standards and the appendices, these Standards prevail.

8.15 Beef Grading

The Enterprise must only permit Graders to grade MSA product in accordance with this Standard and must ensure that each Grader meets the criteria set out below.

8.15.1 Accreditation of graders

Nominated persons must apply to an Authorised Authority to become accredited to grade carcasses to MSA requirements.

8.15.2 Approval to grade carcasses

Applicants must hold a 'Statement of Attainment MSA Grading', or equivalent, and must demonstrate to an Authorised Authority, satisfactory competence in grading through an initial correlation prior to accreditation.

Upon receiving a 'Statement of Attainment MSA Grading', or equivalent, an applicant must, within four weeks must demonstrate, using the 'OSCAP' program to an Authorised Authority, competence in an on-line correlation prior to the commencement of MSA grading.

A copy of each Grader's 'Statement of Attainment MSA Grading', or equivalent, must be included in the Enterprise's Quality Management System records.

The MSA Coordinator on site is issued with a password that can oversee staff details on 'OSCAP'. This person will be required to use 'OSCAP' during audits to demonstrate the currency of their staff.

8.15.3 Maintenance of beef grading status

All personnel grading beef carcasses must demonstrate competence to the satisfaction of an Authorised Authority through a correlation regime determined by the Authorised Authority.

If an Authorised Authority considers that an MSA coordinator ceases to demonstrate the levels of competency required for the position it may suspend the person's approval to act as an MSA coordinator.

To retain current status, a Grader must be a current AUS-MEAT chiller assessor and demonstrate competence, to the satisfaction of an Authorised Authority, through successful correlation via 'OSCAP' and any other requirements of an Authorised Authority. A frequency of once in every eight (8) week period will be maintained.

Records of all correlations must be kept for each Grader's performance and feedback will be provided via email within five working days. If a correlation is successfully passed, the Grader will be issued with electronic evidence of currency via email.

An Authorised Authority will maintain correlation records for 12 months.

Graders who lose currency status for any reason will receive electronic evidence via email of a loss of currency.

To regain currency within 6 months of being non-current, a Grader must complete to the satisfaction of an Authorised Authority a correlation of 40 images on 'OSCAP', for all relevant attributes, and comply with all other requirements.

To regain current status after being non-current for a period of or in excess of 6 months, a Grader must undertake retraining during which the Grader must complete, to the satisfaction of an Authorised Authority, a chiller correlation on 2 runs of 20 carcasses. In addition, the Grader must demonstrate, to the satisfaction of an Authorised Authority, competence in the requirements of the MSA program through a written examination and comply with any other requirements of the Authorised Authority.

8.15.4 Loss of current status as a grader

A Grader may have their Grader status withdrawn in the following circumstances;

- a) Voluntarily upon receipt by an Authorised Authority of written notification from the Grader;
- b) For failing to comply with MSA Grader requirements;

- c) For failure to comply with an Enterprise's Quality Management System procedures;
- d) In any other circumstances determined by an Authorised Authority which in its opinion may adversely affect the integrity of the MSA program; or
- e) For failing to comply with the AUS-MEAT Chiller Assessment Standard.

8.15.5 Attribute correlation

A Grader must show competence in accordance with the listed performance standards during correlation.

Where an enterprise is hot grading, the Authorised Authority may place time constraints on the initial correlation process.

8.15.5.1 Ossification

The variation between the assessment standard and the person correlating must not vary by more than 30% of the sample. No assessment may vary by more than a single score step. A score step is defined as a difference in the MSA ossification scores as shown in the Section 10.11.12 Ossification Standard Table.

8.15.5.2 MSA marbling

The variation between the standard and the person correlating must not vary by more than 30% of the sample. On a correlation run of 20 carcasses, the variation must not vary by more than;

- a) 14 carcasses scored within 50 of the assessor;
- b) The remaining 6 carcasses must not vary by more than 100 points; and
- c) No carcasses can vary by 110 points or more.

8.15.5.3 Tropical breed content of live animals

The assessment made by the person assuming the position of the standard will facilitate training in relation to identification of Tropical Breed Content as determined by the Authorised Authority.

8.15.5.4 Hump height

The assessment made by the person assuming the position of the standard and the person being correlated must not vary on the correlation run by more than 1 score step for all carcasses. A score step is defined as a difference of 10mm in the Hump Height from the correlator's score.

8.15.5.5 Fat distribution

The assessment made by the person correlating must not vary from the standard on all carcasses.

8.15.6 Provision of resources

8.15.6.1 Instruments and facilities

The Enterprise must ensure that;

- a) All measuring and weighing instruments are adequate to perform the measurements required, are in good working order and are accurate; and
- b) Adequate facilities are available to enable all measurements to be accurately taken and recorded.

8.15.6.2 MSA beef stamps and inserts

The Enterprise must only apply carcase stamps, inserts, approved tamper evident labels and/or approved printed packaging, for the purpose of MSA grading, approved by an Authorised Authority unless, with respect of carcase stamps, the Enterprise receives a written exemption from the Authorised Authority.

Carcase stamps issued by an Authorised Authority may only be applied at the Enterprise to which the stamps were issued.

An Authorised Authority may withdraw or prevent the Enterprise from using, for the period determined by the Authorised Authority, carcase stamps, approved tamper evident labels, approved printed packaging or inserts issued by the Authorised Authority.

Without limiting the circumstances in which this action may be taken, it may be taken where the Authorised Authority considers that the integrity of the MSA stamps approved tamper evident labels, approved printed packaging or inserts are at risk or any of those stamps approved tamper evident labels, approved printed packaging or inserts have been incorrectly applied to carcasses or cuts.

Carcase stamps issued remain the property of the Authorised Authority. Inserts can be purchased through the Authorised Authority. In some circumstances, an Enterprise can apply to the Authorised Authority for approval to use their own inserts.

Tamper evident labels and pre-printed packaging cannot be purchased through the Authorised Authority. An Enterprise can apply to MLA for approval to use these items.

8.15.7 MSA Grading Inputs

The following is a list of carcasses measurements collected as inputs for the MSA grading model to determine eating quality outcomes. For carcasses that fail minimum MSA requirements, cut x cook scores and a MSA Index will not be assigned.

8.15.7.1 Carcase measurements

- a) Milk-Fed Vealer (MFV)
 - a. Milk-fed vealer is defined as a calf that is still suckling and sent direct to slaughter.
(Can be identified as a lot rather than individuals);
- b) Saleyard (SY)
 - a. Identifies animals that have been sold through a MSA Licensed saleyard program.
(Can be identified as a lot rather than individuals);
- c) Body number
 - a. Each carcase shall be identified with a number, which can be used as identification of an individual carcase;
- d) HSCW
 - a. Hot Standard Carcase Weight (HSCW) in kilograms
 - b. Refer to AUS-MEAT - National Accreditation Standards; Appendix IV.
- e) Sex
 - a. Each sex of the carcase shall be recorded as (M) male or (F) female.

- b. Refer to AUS-MEAT - National Accreditation Standards; Appendix IV;
- f) Hang method (AT/ TL/ TX)
 - a. There are three current approved methods of hanging carcasses;
 - i. AT - hanging by the Achilles tendon,
 - ii. TL - hanging by the iliosacral ligament, which is more commonly known as the sacro-sciatic ligament,
 - iii. TX - hanging by the 'Pope's Eye' or 'Aitch bone'

A dual anchor point may be used in addition to these hanging points, the primary anchor point is to be used as the grading input
- g) Tropical Breed Content (TBC)
 - a. Tropical Breed Content shall be recorded, as determined on the MSA vendor declaration
 - b. Where cattle lots are presented for grading with mixed or unknown TBC or, TBC greater than 0%, hump height measurement can be used exclusively by utilising the 'X' function in the TBC field.
- h) Hump height (Hump)
 - a. Animals of the same breed type can show different levels of visual (or phenotypic) Tropical Breed Content traits such as hump height, extended ear length and looser skin.
 - b. Method of hump height measurement
 - i. The ruler is held horizontally and parallel with the surface of the sawn chine.
 - ii. The ruler is moved to the position of the greatest hump width and the measurement is taken by viewing from a site that eliminates parallax errors.
 - iii. The measurement includes all of the meat across the hump from the line formed by the dorsal ends of the spinous processes and extended cranially along the dorsal edge of the ligamentum nuchae, across to the dorsal surface of the rhomboideus muscle.
 - iv. Hump height is recorded in gradients of 5mm.
- i) Ossification (OSS)
 - a. Ossification is a measure of the physiological maturity of the carcass being assessed. It is assessed visually and measured in increments with the lowest score being 100 and the highest being 590. Refer to table in Reference materials.
 - b. The maturity of a beef carcass is evaluated by the degree of ossification of the vertebral spinous processes as well as the shape and colour of the rib bones.
 - c. Where possible both sides of a carcass should be evaluated during assessment and the score of the more mature side is to be used for grading.
 - d. Maturity is the development of bone in the cartilage at the end of the spinous process.
 - e. The amount of development determines the ossification score.
 - f. Development starts in the sacral vertebrae (tail or caudal end) and works towards the thoracic vertebrae (head or cranial end).
 - g. Maturity begins as red spots and as it becomes more developed, progresses into yellow, porous bone.

- h. Maturity can be measured pre and post chilling. Where the measurement is taken pre chilling, the score is adjusted by an addition of one score point (10).
- j) AUS-MEAT Marbling (AUSMB)
 - a. Assessment of marbling is at the M. longissimus dorsi using the AUS-MEAT and MSA Marbling Reference Standards.
 - b. Refer to: Marbling, in the AUS-MEAT National Accreditation Standard- Standards for Chiller Assessment.
 - c. Graders must carry visual standards for marbling and determine each score independently.
- k) MSA Marbling (MSA MB)
 - a. MSA Marbling provides an indication of distribution as well as the amount of marbling. Each MSA MB standard photograph is divided into tenths for grading, creating a score range from 100 to 1190 in increments of 10.
 - b. Marbling is assessed at the M. longissimus dorsi at the ribbing site of the carcase.
 - c. Graders must carry visual standards for marbling and determine each score independently.
- l) AUS-MEAT Meat Colour (MC)
 - a. Meat Colour is assessed in the M. longissimus dorsi at the ribbed site using AUS-MEAT Standard colour references.
 - b. Refer to: Meat Colour in the AUS-MEAT National Accreditation Standard - Standards for Chiller Assessment.
- m) Subcutaneous Rib fat (RF)
 - a. Measured in millimetres as the depth of subcutaneous fat over the M. longissimus dorsi.
 - b. A minimum of 3mm is required, measured at the AUS-MEAT standard site.
 - c. Refer to: Rib Fat Measurements in the AUS-MEAT National Accreditation Standard - Standards for Chiller Assessment.
- n) P8 Fat (P8) (if applicable)
 - a. P8 fat is the measurement of subcutaneous fat in millimetres at the P8 site. A minimum of 5mm is required, measured at the AUS-MEAT standard site.
 - b. Refer to: Fat Measurements P8 site, in the AUS-MEAT National Accreditation Standard – Appendix 4 Carcase
- o) Fat distribution (FatDist)
 - a. The coverage and distribution of fat over primals is required to be assessed by the grader as adequate.
 - b. Carcasses are identified as having adequate (Y) or inadequate (N) fat distribution.
- p) Ultimate pH (pH_μ)
 - a. Ultimate pH is a measurement of lactic acid within the muscle. Measurements are taken in the eye muscle (M. longissimus dorsi) at the quartering site in conjunction with temperature.
 - b. MSA requirements for pH_μ are below or equal to 5.70.
 - c. Ultimate pH measurements must be taken with a meter fitted with a temperature adjustment (Bendall Equation) to 7° Celsius.

- q) Loin Temperature (Temp)
 - a. Loin temperature must be recorded on each carcass at the time of grading and must be below 12°C.
- r) Rinse
 - a. Rinse is defined as carcasses that have undergone a process known as vascular infusion or carcass rinsing. (Can be identified as a lot rather than individual)
- s) Hide Puller Damage (HidePD)
 - a. The coverage and distribution of fat over primals is required to be assessed by the grader as adequate.
 - b. Areas of hide puller damage are identified as:
 - 0 – Meets MSA requirements
 - 1 – Damage to butt
 - 2 – Damage to rump
 - 3 – Damage to loin
 - 4 – Ungrade
 - c. Where major carcass primals are void of fat greater than 10cm x 10cm (100cm²), on a single primal, due to damage caused by the removal of the hide, is identified as 1, 2, 3.
 - d. Where excessive hide damage occurs the entire carcass is ungraded, and is identified as 4. Grade code 9 to be entered in grade code field.
- t) Hormone Growth Promotant (HGP)
 - a. Records of Hormone Growth Promotant (HGP) treatment shall be recorded against each carcass.
 - b. This information can be taken from the National Vendor Declaration or newer versions of the MSA vendor declaration. (Can be identified as a lot or individual.).
 - c. HGP status must be recorded accurately at grading, by lot, as stated on the National Vendor Declaration (NVD) or newer versions of the MSA vendor declaration.
- u) MSA Fail Miscellaneous (FailMisc)
 - 0 – Meets MSA requirements
 - 1 – ecchymosis, make an ungrade, grade code 7 to be entered in grade code field.
 - 2 – excessive bruising, make an ungrade, grade code 7 to be entered in grade code field.
 - 3 – all other reasons not previously provided for, make an ungrade, grade code 7 to be entered in grade code field.

8.15.7.2 Reasons for non-compliance

A reason for non-compliance means a code to identify the reason for which a carcass has failed to meet minimum MSA requirements. The MSA reasons for non-compliance are as follows;

- 0 - Meets MSA requirements;
- 1 - Subcutaneous fat depth out of specification;
- 3 – Inadequate fat distribution;
- 4 - pH μ greater than 5.70;
- 7 – MSA Miscellaneous eg, ecchymosis, bruising;
- 8 -Fails to meet AUS-MEAT specifications eg. Loin temperature exceeding 12°C; and
- 9 -Fails to meet hide puller damage specifications.

8.15.7.3 Site operational requirements

The following operational site requirements are required to be met;

- a) Ability to identify and record mobs of cattle eligible for MSA grading. This could be through kill lots and destination or other methods that identify that those cattle have had a MSA vendor declaration and that certain criteria are met on both the MSA vendor declaration and LPA National Vendor Declaration. This includes identification of saleyard cattle, milk fed vealers, HGP's and MSA producer registration number;
- b) Recording of certain measured parameters at carcass labelling such as body number, kill date, lot, HSCW, sex, hang method and destination;
- c) Recording of measured parameters by carcass labelling if utilising hot data collection such as ossification, hump height, and pH μ ;
- d) Recording of certain measured parameters at time of carcass chiller assessment/ grading;
- e) Calculation at time of carcass chiller assessment/grading of all Cut/Cook/Days Age values and record against each carcass number;
- f) Stratify individual carcasses into Plant Boning Runs based on minimum requirements for a set of cut/cook/days age values;
- g) Recording of correct reasons for non-compliance against each carcass number;
- h) The collected and processed MSA data, subsequent cut x cook calculated data and nominated Plant Boning Runs must be complete, fully processed, validated and closed off. Once closed off, the file must be uploaded either manually or automatically to the nominated MSA PBR submission URL. The closed off MSA PBR Data File must be in the specified MSA PBR data file nominated format (either XML or CSV) and naming convention. The submitted MSA PBR Data File is automatically validated and notifications submitted to the sender for either success or failure. Should there be a failure the record details and nature of the failure will be stated;
- i) Generation of producer feedback; and

- j) The MSA Licensee must have suitable operational and quality assurance procedures and systems in place to provide the necessary evidence of operational records and internal audit records of compliance with all of the above MSA plant boning group requirements and these records must be available to the Authorised Authority for audit.

8.16 MSA Lamb and Sheepmeat Classification

The MSA coordinator must demonstrate to the satisfaction of an Authorised Authority competence in these Standards requirements through an initial desktop Audit.

8.16.1 Approval to classify carcasses

A copy of all operatives relevant 'Statement of Attainment's' as documented within this standard must be included in the Enterprise's Quality Management System records.

8.16.2 Maintenance of MSA Sheepmeat Coordinator status

To retain current status, an operative must demonstrate competence to the satisfaction of an Authorised Authority through internal and external Audits and any other requirements of an Authorised Authority.

Records of all audits will be kept for each operative's performance and feedback will be provided directly to the operative at the time of the Audit.

The Authorised Authority will maintain records for 12 months prior to archive.

Where an Operative transfers between Enterprises or has not been actively participating in the application of this Standard a refresher course may be requested by the Authorised Authority.

At any stage an Operative must demonstrate to the satisfaction of an Authorised Authority competence in the requirements of the MSA Sheepmeat program through a verbal examination and comply with any other requirements of an Authorised Authority.

8.16.3 Loss of current status as a MSA Sheepmeat Operative

An Operative may have their status as current MSA Sheepmeat Operative withdrawn in the following circumstances;

- a) Voluntarily upon receipt by an Authorised Authority of written notification from the Operative;
- b) For failing to comply with MSA Sheepmeat requirements;
- c) For failing to comply with the Enterprise's MSA Sheepmeat Quality Management System procedures;
- d) In any other circumstances determined by an Authorised Authority which in its opinion may adversely affect the integrity of the MSA Sheepmeat program; or
- e) For failing to comply with the AUS-MEAT National Accreditation Standards.

8.16.4 Provision of resources

The Enterprise must ensure that;

- a) All measuring and weighing instruments are adequate to perform the measurements required, are in good working order and are accurate; and
- b) Adequate facilities are available to enable all measurements to be accurately taken and recorded.

8.16.5 MSA Sheepmeat stamps and inserts

The Enterprise must only apply carcase stamps, inserts, approved tamper evident labels and/or approved printed packaging for the purpose of the MSA Sheepmeat program approved by an Authorised Authority unless, in respect of carcase stamps, the Enterprise receives a written exemption from the Authorised Authority.

Carcase stamps and inserts issued by an Authorised Authority may only be applied at the Enterprise to which the stamps or inserts were issued.

An Authorised Authority may withdraw from the Enterprise for the period determined by the Authorised Authority carcase stamps, approved tamper evident labels, approved printed packaging or inserts issued by the Authorised Authority. Without limiting the circumstances in which this action may be taken, where the Authorised Authority considers that the integrity of the MSA Sheepmeat stamps, approved tamper evident labels, approved printed packaging or inserts are at risk or any of those stamps, approved tamper evident labels, approved printed packaging or inserts have been incorrectly applied to carcasses or cuts.

Carcase stamps issued remain the property of the Authorised Authority.

Inserts can be purchased through the Authorised Authority. In some circumstances, an Enterprise can apply to the Authorised Authority for approval to use their own inserts.

Tamper evident labels and pre-printed packaging cannot be purchased through the Authorised Authority. An Enterprise can apply to the Authorised Authority for approval to use these items.

8.16.6 Lamb and Sheepmeat Carcass measurements

| Carcass specifications | | | | |
|-------------------------|---|--------|-----------|------|
| Category/ Cipher | Dentition (permanent incisors) | HSCW | Fat score | GR |
| Young Lamb *YL* | 0 (in addition); has no eruption of permanent upper molar teeth. Up to 5 months only | ≥ 16kg | ≥ 2 | ≥6mm |
| Lamb *L* | 0 12 months approximately | ≥ 18kg | ≥ 2 | ≥6mm |
| Hogget *H* | 1-2 | ≥ 18kg | ≥ 2 | ≥6mm |
| Mutton *M*, *W*, *E* | 1-8 | ≥ 18kg | ≥ 2 | ≥6mm |

8.16.6.1 Fat class measurement

A fat class or measurement is the responsibility of an Enterprise employee under the supervision of an Accredited Person as defined by AUS-MEAT. The Authorised Authority will audit the Enterprises Quality System procedures for monitoring the accuracy of measurements.

The minimum is fat class 2. This is equivalent to at GR site measurement of 6mm

The GR site, approved instruments and measurement and assessment methods are defined in the AUS-MEAT National Accreditation Standards.

8.16.6.2 Dentition

Dentition assessment is the responsibility of an abattoir employee under the supervision of an Accredited Person as defined by AUS-MEAT.

The Authorised Authority will audit the Enterprises Quality System procedures for monitoring the accuracy of dentition.

Age of sheep is determined either by eruption of mandibular molar teeth (for the alternative category Young Lamb) or by eruption of permanent incisors (for Lamb and Mutton). Permanent incisor eruption also determines the alternative category of Hogget. Refer to the AUS-MEAT Language for details.

8.16.6.3 Sex

Sex description of carcasses is the responsibility of an abattoir employee under the supervision of an Accredited Person as defined by AUS-MEAT. The Authorised Authority will Audit the Enterprises Quality System procedures for monitoring the accuracy of sex category. Refer to the AUS-MEAT Language for more details.

8.16.6.4 Hang method

There are two current approved methods of hanging MSA carcasses;

- a) AT: hanging by the Achilles tendon; and
- b) TS: Hanging by the iliosacral ligament which is more commonly known as the sacro-sciatic ligament.

8.16.6.5 MSA carcass and primal identification for Lamb and Sheepmeat

| Options for carcass and primal ID | Detail |
|---|--|
| Carcasses: | |
| MSA company roller brand | Include the letters 'MSA' or MSA symbol into a company roller brand and apply to all carcasses that meet MSA standards |
| MSA carcass stamp | Approved 'MSA' carcass stamp that can be applied to carcasses that meet MSA standards |
| Company own brand with signed MSA brand license | MSA Licensed brand that meets MSA standards. |
| Primals: | |
| MSA approved inserts | Use MSA inserts to identify MSA eligible primals from approved MSA carcasses |
| Approved 'brand' printed primal bags | Use MSA approved company branded / printed primal bag to identify MSA Eligible primals from approved MSA carcasses |
| MSA approved tamper evident labels | Use MSA approved tamper evident labels to identify MSA eligible primals from approved MSA carcasses |

8.17 Reference material

8.17.1 MSA generic insert



8.17.2 Example of an acceptable MSA Tamper Evident Label



8.17.3 Examples of MSA descriptions on carton labels



8.17.4 Ossification standards table - beef

| SCORE | APPROX AGE IN MONTHS | SACRAL VERTEBRAE | LUMBAR VERTEBRAL SPINOUS CHARACTERISTICS | 11 TH , 12 TH , 13 TH THORACIC SPINOUS PROCESS CHARACTERISTIC | 1 ST – 10 TH THORACIC SPINOUS PROCESS CHARACTERISTICS | RIB BONE CHARACTERISTICS |
|-------|----------------------|---|---|--|---|---|
| 100 | 9 | No distinct ossification separation | No ossification | No ossification | No ossification | Narrow and oval, lot of blood |
| 110 | 10 | Capping has started 10% to 20% | No ossification | No ossification | No ossification | Slightly narrow, slightly oval, lot of blood |
| 120 | 13 | Capping 30% to 40%, vertical gaps starting to close | No ossification | No ossification | No ossification | Slightly wide and flat, lot of blood |
| 130 | 15 | Advanced capping 50% to 70%, vertical gaps closing, some separation still visible | No ossification | No ossification | No ossification | Slightly wide, slightly flat, moderate blood |
| 140 | 18 | Advanced capping 80% to 90%, vertical gaps closing, some separation still visible | No or minor spots of ossification in one or two vertebrae | No ossification | No ossification | Slightly wide, slightly flat, moderate blood |
| 150 | 20 | Capping completed but some cartilage visible | No or small amounts of ossification in some vertebrae. | No ossification | No ossification | Slightly wide, slightly flat, moderate blood |
| 160 | 22 | Capping completed but small amounts of cartilage visible | 10% to 20% ossification in some vertebrae | No ossification | No ossification | Slightly wide, slightly flat, moderate blood |
| 170 | 24 | Capping completed Almost complete fusing | 30% to 40% ossification | No ossification | No ossification | Slightly wide, slightly flat, small amount of blood |
| 180 | 27 | Capping completed Almost complete fusing | 50% to 70% ossification in all vertebrae | No or minor spots of ossification in one or two vertebrae | No ossification | Slightly wide, slightly flat, small amount of blood |

| SCORE | APPROX AGE IN MONTHS | SACRAL VERTEBRAE | LUMBAR VERTEBRAL SPINOUS CHARACTERISTICS | 11 TH , 12 TH , 13 TH THORACIC SPINOUS PROCESS CHARACTERISTIC | 1 ST – 10 TH THORACIC SPINOUS PROCESS CHARACTERISTICS | RIB BONE CHARACTERISTICS |
|-------|----------------------|---|--|--|---|---|
| 190 | 29 | Capping completed, almost complete fusing | 80% to 90% ossification in all vertebrae | Less than 25% ossification in all 3 spinal process, or 100% in any 1 spinal process | No ossification | Slightly wide, slightly flat, small amount of blood |
| 200 | 30 | Complete fusing | Almost complete ossification | >25% ossification in all 3 spinal process, or 100% in any 1 spinal process | Minor ossification, slightly red chine | Slightly wide, moderately flat, traces of blood |
| 230 | | Complete fusing | Almost complete ossification | 30% to 40% ossification in all 3 spinal process, or 100% in any 1 spinal process | Minor ossification in some of the first 6 thoracic vertebrae, 10% to 20% in 7 th to 10 th vertebrae | Slightly wide, moderately flat, traces of blood |
| 250 | | Complete fusing | Almost complete to complete ossification | >50% ossification in all 3 spinal process, or 100% in any 1 spinal process | 10% to 20% ossification in some of the first 6 thoracic vertebrae, 30% to 50% in 7 th to 10 th vertebrae | Moderately wide, moderately flat, traces of blood |
| 280 | | Complete fusing | Complete ossification | >70% ossification in all 3 spinal process, or 100% in any 1 spinal process | >30% in the 1 st to 10 th vertebrae | Moderately wide, moderately flat, traces of blood |
| 300 | 42 | Complete fusing | Complete ossification | 80% to 90% ossification in all 3 spinal process, or 100% in any 1 spinal process | More than 30% ossification in first 6 th thoracic vertebrae, 50% to 70% in 7 th to 10 th vertebrae | Moderately wide, moderately flat, traces of blood |
| 350 | | Complete fusing. | Complete ossification | Almost complete to complete ossification | 40% to 80% ossification involving all vertebrae | Wide and flat, no blood |
| 400 | 72 | Complete fusing | Complete ossification | Complete ossification, outlines barely visible | Almost complete ossification, outline plainly visible | Wide and flat, no blood |

8.17.6 Lamb and Sheepmeat - Approved cuts table

| CUTS AND COOKING METHODS | | | | | |
|---------------------------|------|---|--|--|--|
| | | LAMB (L) ● | HOGGET (H) ● | MUTTON (M) ● | |
| CUT | HAM | GRILL  | ROAST  | STIR FRY  | C/ROLE  |
| Leg Chump / On | 4800 | | ● ● | | |
| Leg 'Easy Carve' | 4821 | | ● ● | | |
| Leg Chump / Off | 4820 | | ● ● | | |
| Chump | 4790 | | ● ● | | |
| Chop | | ● ● ● | | | |
| Hind Shank | 5031 | | | | ● ● |
| Leg Chump / On (Boneless) | 5060 | | ● ● | | |
| Rolled / Tied | | | ● ● | | |
| Topside | 5073 | | | ● ● | |
| Silverside | 5071 | | | ● ● ● | |
| Thick Flank (Round) | 5076 | ● ● | ● ● | ● ● | |
| Chump (Rump) | 5130 | ● ● | ● ● | ● ● | ● ● |
| Topside (Den) | 5077 | | | ● ● | |
| Outside (Den) | 5075 | | | ● ● ● | |
| Knuckle (Round) | 5072 | ● ● | ● ● | ● ● ● | |
| Rump (Den) | 5074 | ● ● ● | ● ● ● | ● ● | ● ● |
| Loin | 4860 | | ● ● ● | | |
| Shortloin | 4880 | | ● ● ● | | |
| Rolled | | | ● ● ● | | |
| Noisettes | | ● ● ● | ● ● ● | | |
| Chop | | ● ● ● | | | |
| Eye of Shortloin | 5150 | ● ● ● | | ● ● ● | |
| Rack | 4932 | | ● ● ● | | |
| Rack Cap / On (Frenched) | 4756 | | ● ● ● | | |
| Outlet | | ● ● ● | | | |
| Rack Cap / Off (Frenched) | 4764 | | ● ● ● | | |
| Outlet | | ● ● ● | | | |
| Backstrap | 5109 | ● ● ● | | ● ● ● | |
| Eye of Rack | 5153 | ● ● ● | | ● ● ● | |
| Forequarter | 4972 | | ● ● | | |
| Square Cut Shoulder | 4990 | | ● ● | | |
| Chop | | ● ● | | | |
| Shoulder Rack (Frenched) | 4739 | | ● ● | | |
| Outlet | | ● ● | | | |
| Fore Shank | 5030 | | | | ● |
| Oyster Cut Shoulder | 4980 | | ● ● | | |
| Shoulder (Easy Carve) | 4994 | | ● ● | | |
| Forequarter (Boneless) | 5047 | | ● ● | | |
| Shoulder Rolled/Netted | 5050 | | ● ● | | |
| Neck Fillet Roast | 5059 | | ● ● | | |
| Eye of Shoulder | 5151 | | ● ● | | |
| Tenderloin | 5080 | ● ● ● | | | |
| Butt Tenderloin | 5081 | ● ● ● | | | |
| Tenderloin / Butt Off | 5082 | ● ● ● | | | |
| Breast & Flap | 5010 | No recommended cooking methods | | | |
| Neck | 5020 | | | | |
| Spare Ribs | 5015 | | | | |

11 672 Fax: 1800 994 672

8.17.7 Invoices

Examples of invoices:

CARCASE INVOICE

| Account number | Total items | Date | Invoice No. | Terms | Order No | MSA License No |
|----------------|--------------------------|----------|-------------|--------|-------------------|----------------|
| No. 123456 | 10 | 24-09-09 | 987654 | 7 Days | 3 | 9999 |
| Number | Details | | Weight (kg) | Price | Amount | |
| 2 | *YG* beef carcass - MSA | | 430.00 | \$5.00 | \$2,150.00 | |
| 1 | *YG* beef carcass | | 185.00 | \$4.00 | \$740.00 | |
| 5 | *L* lamb carcasses - MSA | | 95.60 | \$6.20 | \$592.72 | |
| 2 | *H* hogget carcass | | 46.30 | \$4.80 | \$222.24 | |
| TOTAL | | | | | \$3,704.98 | |

CARTON INVOICE

| Account number | Total items | Date | Invoice No. | Terms | Order No | MSA License No |
|----------------|-----------------------------|----------|-------------|---------|-------------------|----------------|
| No. 654321 | 7 | 24-09-09 | 987655 | 7 Days | 4 | 9999 |
| Number | Details | | Weight (kg) | Price | Amount | |
| 2 | *YG* rump MSA | | 33.30 | \$10.00 | \$333.00 | |
| 2 | *YG* Cube roll | | 36.00 | \$16.00 | \$576.00 | |
| 3 | *L* Lamb Leg Chump on – MSA | | 48.00 | \$8.00 | \$384.00 | |
| TOTAL | | | | | \$1,293.00 | |