IN-SHED TEST REPORTS

Recommended Sampling Procedures

Version 3.0, June 1998
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Contents

Sampling Procedures

Version 3.0 June, 1998

1. INTRODUCTION

The purpose of this manual is to provide instructions on some recommended procedures to be followed by a wool grower or their agent, to obtain representative samples from a farm lot, in the shearing shed, for subsequent testing for Yield, Vegetable Matter (VM), Mean Fibre Diameter (MFD), Staple Length (SL), Staple Strength (SS) and Position of Break (POB).

Two separate samples must be obtained.

- **A core sample for the measurement of Yield, VM and MFD.**
- **A full length sample for the measurement of SL, SS and POB.**

This manual recommends procedures to be followed in obtaining these samples.

The recommended core sampling procedure is to manually core-sample the lots once lotting is complete. This procedure is derived from International Wool Textile Organisation (IWTO) Specifications.

The method approved by IWTO for obtaining full length (grab/appraisal) samples is impractical in a shearing shed. The procedures described in this manual are designed to provide as representative a sample as possible and allow testing to recognised standards. However some qualifications apply and these are stated in the text.

A mechanical system is also available for obtaining these samples. Contact details for the suppliers of this equipment system are included.

1.1 Vendor Declaration

The credibility of test results from samples obtained using these procedures rests on the assumption that the sampling has been conducted according to the requirements specified in this manual. Failure to do so increases the possibility of bias in the results.

Wool growers who utilise these procedures and who arrange the sale of their wool on the basis of test results so obtained, may wish to sign a declaration to the buyer affirming that these procedures have been followed. A copy of such a declaration is included in Appendix A. **This is provided without the assumption of a duty of care by AWTA Ltd. Legal or other advice should be sought before completing any declaration**.

Wool growers who intend to sell their wool on the basis of Test Reports should request a copy of the contract from the buyer and seek legal or other professional advice before committing themselves to the contract.

1.2 Equipment

The kit supplied with this manual includes the following items:

- **One pad of AWTA Ltd Report Test Request forms.**
- **One pad of AWTA Ltd Weight Note forms.**
- **One manual core tube and bell.**
- **Six core tube cutters.**
- **One sharpening cone.**
- **One sharpening ball.**
- **One sampling knife.**

- **One box of rubber bands.**
- **One can of grinding paste.**
- **20 large plastic bags (1000 x 850 mm)**
- **50 small plastic bags (750 x 450 mm)**
- **One pack of cardboard cards**

The contents of the kit are illustrated in Figure 1. Check that the kit is complete before proceeding further. Replacement items can be obtained by contacting the nearest AWTA Ltd office.

Figure 1: Contents of Sampling Kit supplied by AWTA Ltd

2. STAPLE SAMPLING

A representative sample of full length wool is required for the determination of SL, SS and POB. From this sample a subsample consisting of 63 individual tufts is obtained. From each tuft, one staple is selected at random, giving a total of 63 staples. These are subsequently tested for SL, SS and POB. The average of these measurements is an estimate of the average SL, SS and POB of the original full length sample. Provided this original sample is representative of the lot from which it was obtained, the measured mean SL, SS and POB is an repeatable estimate of these characteristics for the lot.

The grab sample that is used as a display sample in the auction selling system is normally used for obtaining the 63 staples required for measurement of SL, SS and POB. This sample is normally obtained by mechanically withdrawing a minimum of 20 grab samples from each farm lot. Each bale is sampled, with an equal number of grabs being taken at random from each bale in the lot.

Currently, mechanical grab sampling on farm is not a feasible option. The procedures recommended in this manual are designed to obtain a representative full length sample by either subsampling each armful of wool as it loaded into the press, or by subsampling each individual fleece. These subsamples are later aggregated to form a global sample for the lot.

The physical layouts, and the operational practices within different shearing shed are not the same. Consequently it is not possible to provide a detailed procedure for organising the sampling that will be universally applicable. This manual therefore only describes the essential elements of the sampling operation. **However, to ensure that the sample obtained is is representative it is essential that the specified requirements are met.**

2.1 Essential Requirements

Two sampling systems are described in this manual. These are:

- **tuft samples taken at random from individual fleeces; and**
- **tuft samples taken at random during pressing.**

The choice of which system is used will depend on the type of wool (i.e. fleece wool or skirtings) and the particular circumstances that exist in the operation of the shearing shed. Each system has known limitations, and these are indicated where appropriate.

The critical elements of the sampling operation are:

- each tuft sample must taken at random;
- each tuft sample must be roughly the same size; and
- a tuft sample, once taken, must never be rejected.

2.2 Manual Sampling

This section describes the procedure for obtaining a representative sample of full length wool for subsequent testing for SL, SS and POB. These tests are normally conducted on combing wools, although it is possible to test for SL on carding wools.

2.2.1 Fleece Lines

Sampling from individual fleeces is recommended for obtaining a representative sample of a main fleece line. The two recommended systems are:

- sampling fleeces on the table; or
- sampling fleeces as they are placed in the bin.

These require no prior knowledge of the size of the final lot.

A system based on sampling while the wool is being pressed is also described. This does require prior knowledge of the final lot size.

(a) Sampling Fleeces on the Table[1]

(1) Ensure that a container is provided that can be related to the bin for each classed line. This may be a cardboard box or a plastic bag attached to the bin.

(2) While the fleece is on the table, and once skirting is completed, and if necessary the backs removed, select a tuft consisting of 4-6 staples from one quadrant of the fleece, as shown in Figure 2.

- To avoid a length bias it is essential that the sampling location within the quadrant is varied.
- Always retain the **first** tuft selected. Never reject a tuft once it has been taken.

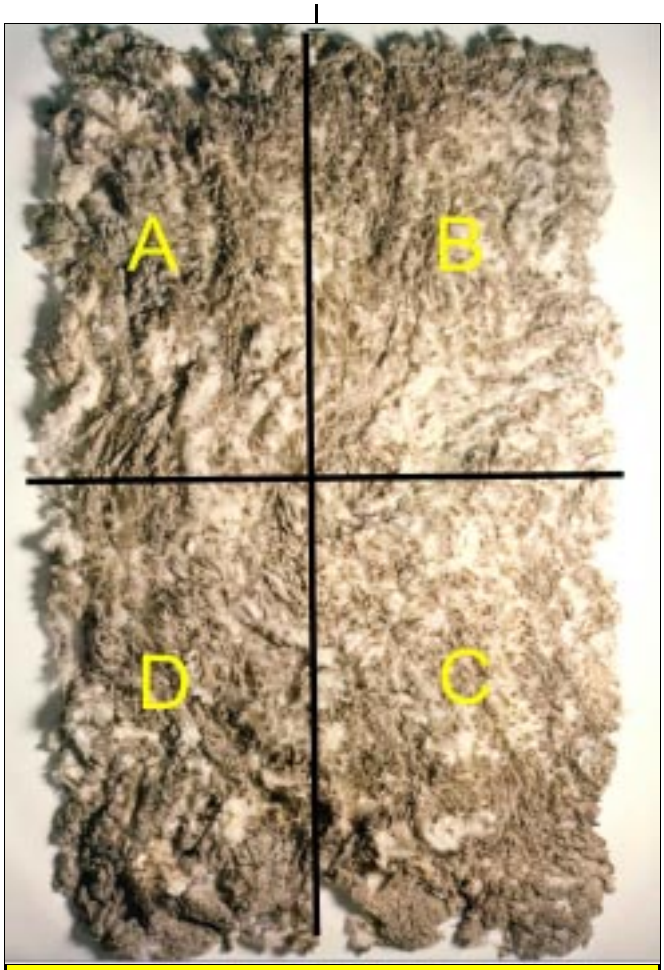

Figure 2: SL, SS and POB requires a full length sample that is representative of the lot. The recommended method for sampling from a fleece on the table is to take a single tuft of 4-6 staples from each fleece. The first fleece must be sampled in quadrant A, the second in quadrant B and so on. Ensure that the sampling position within each quadrant is varied. The sample must be taken after skirting is complete (and back removed), with the objective of obtaining a total mass of 3-4 kgs for the final classed line.

- Successive fleeces must always be sampled from an adjacent quadrant, not from the same quadrant as the previous fleece. The location within the quadrant must be different from the location in the previous fleece.

(3) It is essential that the tuft is transferred to the classer with the fleece. Once the classer has classed the fleece and decided on the appropriate bin, place the corresponding tuft in the designated container for the bin[2].

(4) When pressing for a particular bin is complete, take the sample of tufts representing the wool in the bin and place

1 This procedure has been developed by the In-shed Sampling Working Group in NSW, involving the NSW Farmers Association, AWTA Ltd and Hugh Hopkins and Associates.

2 **The organising of this step in the sampling operation is likely to be the most difficult to supervise and control. It is essential that the classer and shed hands are adequately briefed. It is essential that the tuft sample remain with the fleece and that it is placed in the correct container. The logistics of this operation will differ from shed to shed, and it is important that this is given sufficient consideration prior to the com-**

it in a plastic bag, sealing the bag with a rubber band. Record the description and the corresponding bale numbers on the card provided and place it inside the plastic bag so that it can be read. Place this sample in a secure location until the bale is assembled into a lot[1].

(5) When lotting is complete, transfer the samples of tufts corresponding to each bale in the lot into one of the large plastic bags supplied with the sampling kit.

(6) Place a copy of the weight note (see **Documentation**) for the lot inside the bag with this sample, so that the weight note can be read. Seal the sample bag with a rubber band. The cards from each component bag can be discarded.

(b) Sampling Fleeces Placed in the Bin[2]

(1) Ensure that a container is provided that can be related to the bin for each classed line. This may be a cardboard box or a plastic bag attached to the bin. Flip top plastic containers (e.g. kitchen waste bins) are particularly suitable and also prevent contamination from other sources of wool in the shed.

(2) Take a tuft of wool (4-6 staples) from each fleece, at random. The tuft should be the wool held in one hand while delivering the fleece to the bin or the press.

(3) Continue as described in (4), (5) and (6) of the previous section.

1 Under no circumstances should the mass of the aggregate sample be reduced by further sub-sampling, because this may affect the accuracy of the final result. All the sampled material must be submitted to the laboratory.

2 This procedure was developed by Esperance Wool Exporters (WA) in conjunction with the Esperance Region Wool Improvement Group. It is not recommended for use in sheds where the fleeces are rolled before being placed in the bin.

3 This procedure was developed by the UGA and the DPI in Queensland. The procedure is applicable to fleece lines, and also skirtings and bellies. However it does require prior knowledge of the final lot size.

(c) Sampling Fleeces During Pressing[3]

The objective of this procedure is to obtain a total sample mass of 3 - 4 kgs for the final classed line. It is necessary to have an indication of the final lot size so that the amount taken in each subsample can be adjusted to achieve this sample weight.

The following sampling procedure is required:

(1) Determine the weight of sample per armful to be taken. Utilise the following method to determing this weight.

- Estimate the number of bales (A)
- Estimate number of armfuls to achieve one bale (B)
- Number of samples C = AxB
- Total weight of sample required is 4 kg or 4000 grams
- Average weight per armful = 4000/C grams or 4/C kg.

(2) Attach one of the small plastic bags to the side of the press, or alternatively place it beside the press.

(3) As an armful of wool is placed into the press, reach into the middle of the armful, take a sample of wool and place it in the plastic bag. Take a sample of similar size from every successive armful until the entire bin has been pressed. It is important to note the following points:

- the sample must be taken without fear or favour - this is best achieved by taking the sample from the middle of the armful thereby ensuring the portion selected is out of sight;
- a sample must be taken from every armful;
- never reject a sample, no matter what its quality or appearance; and
- aim to take a similar sized sample from every armful within the lot.

(4) Once the pressing of a particular bin is complete, record the description and the corresponding bale numbers on one of the cards provided. Placed the card in the bag of accumulated wool so that it can be read. Seal the bag with a rubber band and place it in a secure location until the wool is lotted.

(5) When lotting is complete, transfer the

samples corresponding to the wool in each lot into one of the large plastic bags supplied.

(6) Place a copy of the weight note (see **Documentation**) for the lot inside the large bag of sample so that the it can be read. The cards from each component bag can be discarded.

2.2.2 Skirting Lines[1]

Sampling skirting (broken) lines is inherently more difficult because the amount of skirted wool from each fleece is relatively small. The procedure relies on a random selection of a tuft from the skirtings from each fleece.

(1) Ensure that a container is provided that can be related to the bin for the skirting (broken) line. This may be a cardboard box or a plastic bag attached to the bin.

(2) When the skirtings are removed from the fleece, select a tuft of wool consisting of 2-3 staples at random from the skirtings **before** they are placed in the bin.

(3) When pressing for a particular bin is complete, remove the sample of tufts from the front of the bin and place it in a plastic bag, sealing it with a rubber band. Record the description and the corresponding bale numbers on the card provided and place it inside the plastic bag so that it can be read. Place this sample in a secure location until the wool is lotted.

(4) At the completion of the line and when lotting is complete transfer the samples of tufts corresponding to the wool in each lot into one of the large plastic bags supplied with the sampling kit.

(5) Place a copy of the weight note (see **Documentation**) for the lot inside the large bag of sample, so that it can be read.

1 This procedure was developed by the In-shed Sampling Working Group in NSW, involving the NSW Farmers Association, AWTA Ltd and Hugh Hopkins and Associates.

2 The number of staples in the tuft should be approximately 1/4 to 1/3 the number selected for the main line. This is to avoid creating a sample that is too large. The objective is to obtain a final mass of 4-6 kgs for the skirting line, although a lesser mass will suffice.

2.3 Mechanical Sampling

The Seymour Group in Victoria has used PIRD funds to develop a mechanical system for extracting a full length sample from each bale while it is in the wool press. The sampling device is attached to the monkey on the press, and the samples are taken once the bale has been fully pressed. The device can only be successfully used on corner pinning presses.

This device is subject to patent. Documented procedures are provided with the equipment. For further information contact:

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3. CORE SAMPLING

Sampling for the determination of Yield, VM and MFD, requires a core sample to be obtained from each bale in the lot. This sampling approach has been shown to provide a sample that is representative of the lot.

Core samples can be taken mechanically or by hand. Mechanical systems are better suited to large scale, centralised operations such as Wool Brokers stores. Hand coring is better suited to small scale, non-centralised operations, and therefore is suitable for obtaining samples on farm after shearing.

3.1 Essential Requirements

There are a number of essential requirements for obtaining a representative core sample:

- Every bale in the lot must be sampled using the same type of apparatus, having a cutting tip of the same diameter.
- To enable the calculation of processing

yields, the weight of each bale must be recorded **at the time of sampling**.

- The coring tube must enter the bale in the direction of bale compression and parallel to the sides of the bale.
- Pack material must be removed prior to core sampling to avoid contamination of the sample and the wool in the bale.
- Cores must be taken at a distance not less than 75 mm (3 inches) from any edge of the surface to be cored (see Figure 4).
- The same depth of penetration must be maintained for each core taken from the lot.
- The core sample must be drawn from at least 94% of the depth of the bale. **Manual sampling can only accomplish this by sampling through the top and through the bottom of the bale**.
- The same number of cores must be taken from each bale in the lot.
- As the cores are taken they must be placed immediately into a plastic bag.
- Once sampling is complete the core sample must be sealed in the plastic bag after squeezing out the excess air and this sealed bag placed inside another plastic bag which must also be sealed.
- If sampling is interrupted, care must be taken to ensure that no material is lost and no undue exposure to the atmosphere occurs.
- A sufficient number of cores must be taken

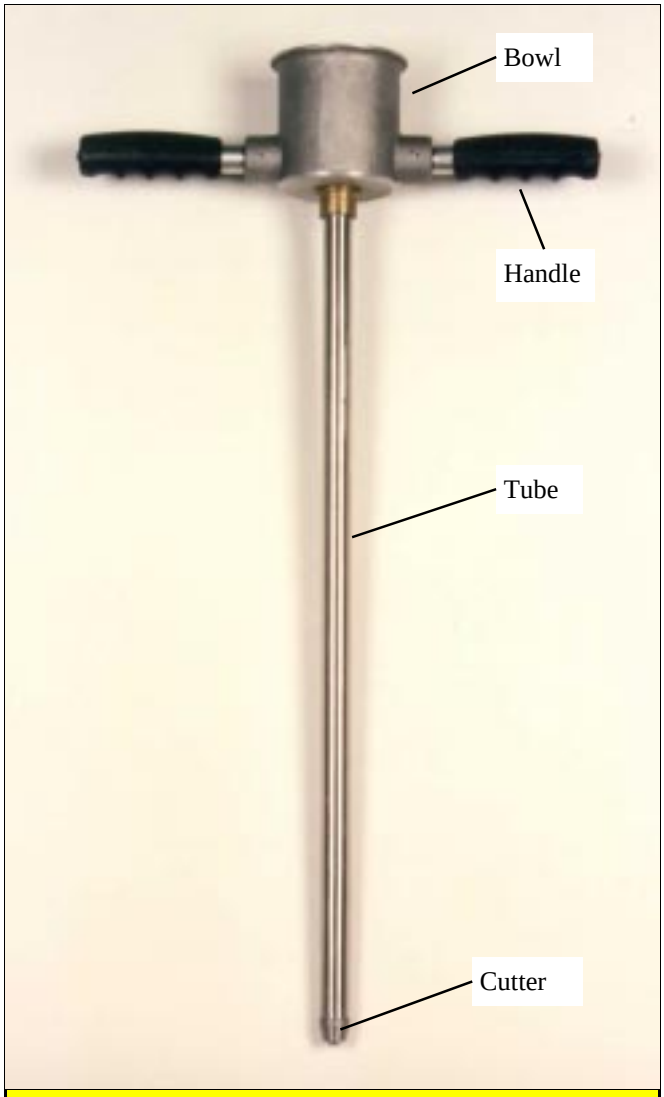

Figure 3: Elements of the manual coring equipment supplied in the sampling kit, shown in an assembled form.

3.2 Manual Sampling

Before core sampling can commence, the wool must be lotted into sale lots.

There are three major areas to consider in the manual core sampling of raw wool:

- safety requirements;
- equipment use and maintenance; and
- sampling procedures and documentation.

These issues are discussed in the following sections.

3.2.1 Safety Requirements

A strict standard of safety is essential. Although the sampling equipment (Figure 3) appears to be simple and easy to handle it can inflict major injury if care is not taken and the equipment is not used sensibly.

Dangerous situations can be avoided by observing the following rules:

- Sampling equipment must not be used for any purpose other than the core sampling of bales of wool.
- Permit only authorised personnel to handle the equipment.
- Ensure the knife and cutters are sharp and the cutters are changed frequently.
- Remove the cutters from the core tube when it is not in use.
- Store the cutters in the container provided and place the knife in the safety pouch when these items are not in use.
- Carry the equipment in the container that is provided.

- Bales must be presented for sampling in a way that will allow for safe core sampling. It is essential that the bales are stable during core sampling and are unable to be moved by the action of core sampling. Refer to Figure 5 for an illustration of a safe procedure.
- Slits made with the sampling knife to allow penetration of the core tube must be cut with an away from the body action.
- Other personnel present must stand clear of the sampler.
- The cutter must be the last piece of equipment connected to the core tube before sampling and the first piece of equipment disconnected after sampling.

3.2.2 Equipment Maintenance

(a) Cutters

The cutters supplied with the kit will already have been sharpened. Subsequent sharpening should be as required, remembering that a blunt cutter can be dangerous, and may also reduce the representativeness of the core sample. Procedures for sharpening cutters are as follows:

(1) Place the sharpening ball provided in the kit in a secure device which enables the ball to rotate at a high speed. An electric hand drill with an appropriate chuck is a suitable device. The drill should be secured to a bench top for the best results and also to ensure the safety of the operation. Eye protection must be worn while sharpening cutters.

(2) Place a portion of the grinding paste supplied with the kit on the inside edge of the cutter and place the cutter on the rotating ball. This will produce a grinding action on the inside edge resulting in a lip on the outside of the edge of the cutter. This lip should be gently honed off using the cup provided in the kit.

(b) Assembly and Operation

(1) The core tube screws into the handle. Ensure that it is secure. If loose, the screw threads will be damaged during sampling.

(2) Attach one of the small plastic bags to the bowl of the coring equipment with rubber bands. This bag retains the core sample when it is removed from the core tube with the heel of the sampling knife.

(3) The knife is used to cut the bale in preparation for the core tube penetration. It is also used to clear the core tube of the wool collected during sampling. This is done by inserting the heel of the knife in the slit in the tube directly under the cutter, and running the knife down the slit towards the handles. The wool collects in the plastic bag connected to the bowl.

3.2.3 Sampling Procedures

A minimum number of cores per lot must be taken and each bale sampled appropriately and in accordance with the schedule in Table 1. A sample mass in excess of 300 grams **must** be obtained.

Once the bales have been lotted, the coring schedule determined, and the bales are suitably located, sampling shall proceed as follows:

(1) Weigh each bale and record the weight on the weight note provided in the sampling kit (see **Documentation**).

(2) Place a plastic bag over the top of the bowl of the core gun and secure it using

Table 1: Coring Schedule

Number of Bales	Number of cores to be taken from each bale	
	Top	Bottom
1	12	12
2	6	6
3	4	4
4	5	5
5-6	4	4
7-10	3	3
11-19	2	2
>19	1	1

rubber bands.

(3) Screw a cutter into the tip of the coring tube.

(4) Ensure that every bale in the lot is sampled according to the schedule in Table 1, taking equal numbers of cores from the top and the bottom of each bale.

(5) The core must be taken at random positions on the cap and base and not closer than 75 mm (3 inches) from the edge of the surface to be cored (see Figure 4).

(6) Slits of approximately 50 mm (2 inches) are to be made with the knife. The slits must allow contamination free core tube penetration and should be made with a quick stabbing action in a direction away from the body and diagonal to the warp and weft of the pack fibre.

(7) Do not take any more than one core from each slit.

WARNING

Manual core sampling can be hazardous if improper techniques are employed. Ensure that all personnel involved are aware of the safety instructions on the previous pages.

(8) Ensure that the thrust of the core is parallel to the sides of the bale (see Figure 5).

(9) Ensure that the full length of the core tube is thrust into the bale.

(10) Clear the core tube after each penetration with the heel of the sampling knife.

(11) The core sample must enter the plastic bag without loss of material and without undue exposure to the air.

(12) When sampling of the lot is complete, remove the plastic bag containing the wool sample from the core gun, taking care not to spill any of the sample. **Place the core gun in a safe location, preferably hanging with the tip pointing towards the ground.** Squeeze the neck of the bag together, place the bag on a flat surface and compress the sample in the bag to expel surplus air. Twist the neck of the bag and seal it using a rubber band.

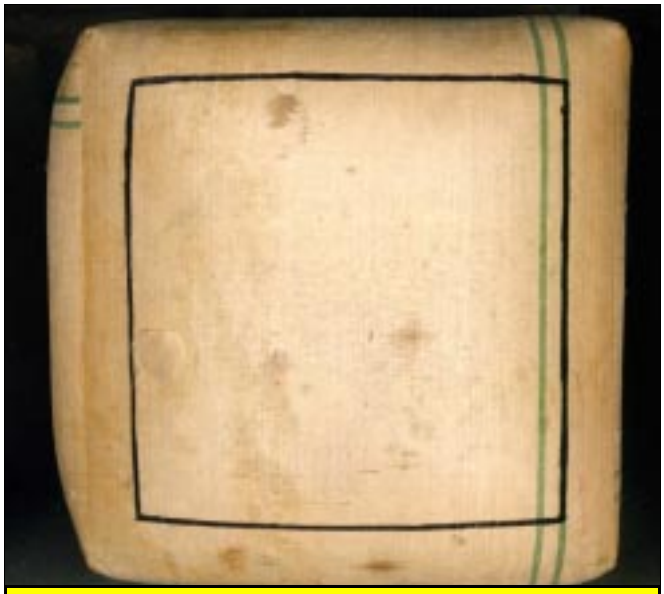

Figure 4: The black line encloses the area within which coring must occur. The edges of the bale represent an area of moisture instability The core tube should not be allowed to penetrate the bale within 75 mm (3 inches) of its edge.

(13) Insert the sealed sample inside another plastic bag. Place the **original** copy of the weight note (see **Documentation**) in between the inner and outer bag so that it can be read through the plastic and then use a second rubber band to seal the outer bag.

(14) To ensure that the core sample and the

Figure 5: This illustration shows how a bale can be cored without arranging the bale in a block and without standing on the top of the bale. This method is particularly suitable where there is adequate space and the floor surface is sufficiently smooth to allow the bales to be brought to the sampler by hand truck. Note how the sampler positions himself so that the thrust into the bale is made using the arms and shoulders rather than the back.

3.2 Mechanical Sampling

The Seymour Group in Victoria has used PIRD funds to develop a mechanical system for extracting a core sample from each bale while it is in the wool press. The relevant sampling device is attached to the monkey on the press, and the samples are taken once the bale has been fully pressed.

The mechanical devices developed by the Seymour Group are subject to patent. Documented procedures are provided with the equipment. For further information, contact:

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PO Box 326
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Ph: 03 5433 2358

or

Greg Smith
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Ph/Fax: 03 5797 0234

The essential requirements defined in the previous sections must also be met in this in-

4. BALE WEIGHING

The recording of the bale weights at the time of sampling is required for the calculation of processing yields.

The laboratory requires the gross weight of each bale and the tare weight of the pack. The nett weight is the difference between the gross weight and the tare weight.

The Wool industry uses standard tare weights for the packs, with each type of pack having a specified tare. The types of available packs and their individual tare weights are shown in Table 2.

However, the exact tares of the different types of packs varies within batches of packs. To compensate for biases that may occur arising from this variation, a specific rounding procedure (A and B in Table 2) is used.

The synthetic (HDPE) pack with the two green stripes (tare 2 kg) is currently the most commonly used and accounts for more than 90% of the packs in Australia.

Weigh the bales as follows:

(1) Check that the scales are operating correctly. Place a known weight on the scales (the body weight of the sampler is a good check) to ensure that the scales are not grossly out of calibration.

(2) Identify the type of pack from Table 2 and select the appropriate tare weight. Also note the weighing procedure to be used for the particular type of pack.

(3) Weigh each bale using one of the following procedures:

WEIGHING PROCEDURE A

The weight of each bale should be recorded by rounding to the nearest kilogram above the actual bale weight, except where an exact whole kilogram occurs. e.g.

171.3 kg => 172 kg
171.5 kg => 172 kg

TABLE 2: Tare Weights of Wool Packs Available within Australia

Description	Markings	Approximate Date Supplied	Nominal Tare (kg)	Weighing* Procedure
Synthetic (HDPE)	2 green stripes	From 1980	2	B
Jute	2 red stripes	From 1991	5	B
Nylon	White colour	From 1990	2	A
Nylon	2 yellow stripes	1993 only	2	A
Plastic (Experimental DALPAK)	Transparent blue	From 1996	2	B

*A The weight of the bale should be recorded by rounding to the nearest kilogram above the actual bale weight, except where an exact whole kilogram occurs

*B The weight of the bale should be recorded by rounding to the nearest kilogram either below or above the actual bale weight with 0.5 kg rounded up.

172.0 kg => 172 kg

WEIGHING PROCEDURE B

The weight of each bale should be recorded by rounding to the nearest whole kilogram either below or above the actual bale weight with 0.5 kg rounded up. e.g.

171.3 kg => 171 kg
171.5 kg => 172 kg
171.7 kg => 172 kg
172.0 kg => 172 kg

Because synthetic (HDPE) packs are the most common in use in Australia, weighing procedure B is likely to be the most common

IMPORTANT NOTE:

The importance of having accurate scales cannot be over-estimated. Errors in weighing will cause errors in predicting the performance of the wool in processing and may result in claims.

If at all possible, avoid the use of wool press scales for weighing the bales. Cattle scales are preferred, as wool press scales are frequently unreliable. If the use of wool press scales is unavoidable then the level of the press should be checked as the sensors in the scales in presses are affected when the press is not level.

The bales must be weighed at the time of sampling. If the bales are weighed during pressing, and these weights recorded on the weight note, then weight changes may occur which will cause significant errors in the calculation of the processing yields.

5. DOCUMENTATION

The sampling kit includes pads of two forms which must be completed for each lot:

- Weight Note; and
- Report Test Request.

The Weight Note is a pressure sensitive form which allows for four copies. **It is essential that these documents are completed correctly.**

5.1 Weight Note

The function of this document is to:

- Record the gross and tare weight of the bales in the lot at the time of core sampling.
- Provide a document that can be used by the laboratory to identify the core sample and the tuft sample and to link the two samples so that the final reports can be produced.

The Weight Note is a multi-purpose form and contains space for information which is not required for in-shed sampled lots. The instructions below indicate which parts of the form may be left blank.

An example of a completed Weight Note is shown in Figure 5. Before recording any information place the cardboard separator under the green copy. Use a ball point pen to complete the top copy. **Complete one Weight Note for each lot, using block letters, as follows.**

(1) In the **CENTRE** field print the AWTA Ltd office to which the samples are to be consigned (see **Sample Dispatch**) .

(2) In the **BROKER** field print ***GROWER SAMPLED***.

(3) Leave the **SALE** field blank.

(4) In the **LOT No.** field print reference number or description for the lot.

(5) In the **BALES** field print the number of bales in the lot.

(6) In the **TEST REF.** field print the brand.

(7) The **DATE LODGED** field is optional and can be used to record the date on which the samples are dispatched to the laboratory.

(8) Leave the **DATE DUE** field blank. Normally the test results will be available with 4 working days after receipt by the laboratory.

(9) Print the number of each bale in the **Bale No.** column .

(10) Print the gross weight of each corresponding bale in kilograms in the **ORIGINAL GROSS** column .

(11) Print the tare weight of the packs in the **TARE** column (see **Bale Weighing**, Table 2).

(12) Leave the **AWTA GROSS** column blank.

(13) Leave the * column blank

(14) Print the description on the bales in the **BRAND/DESCRIPTION** column.

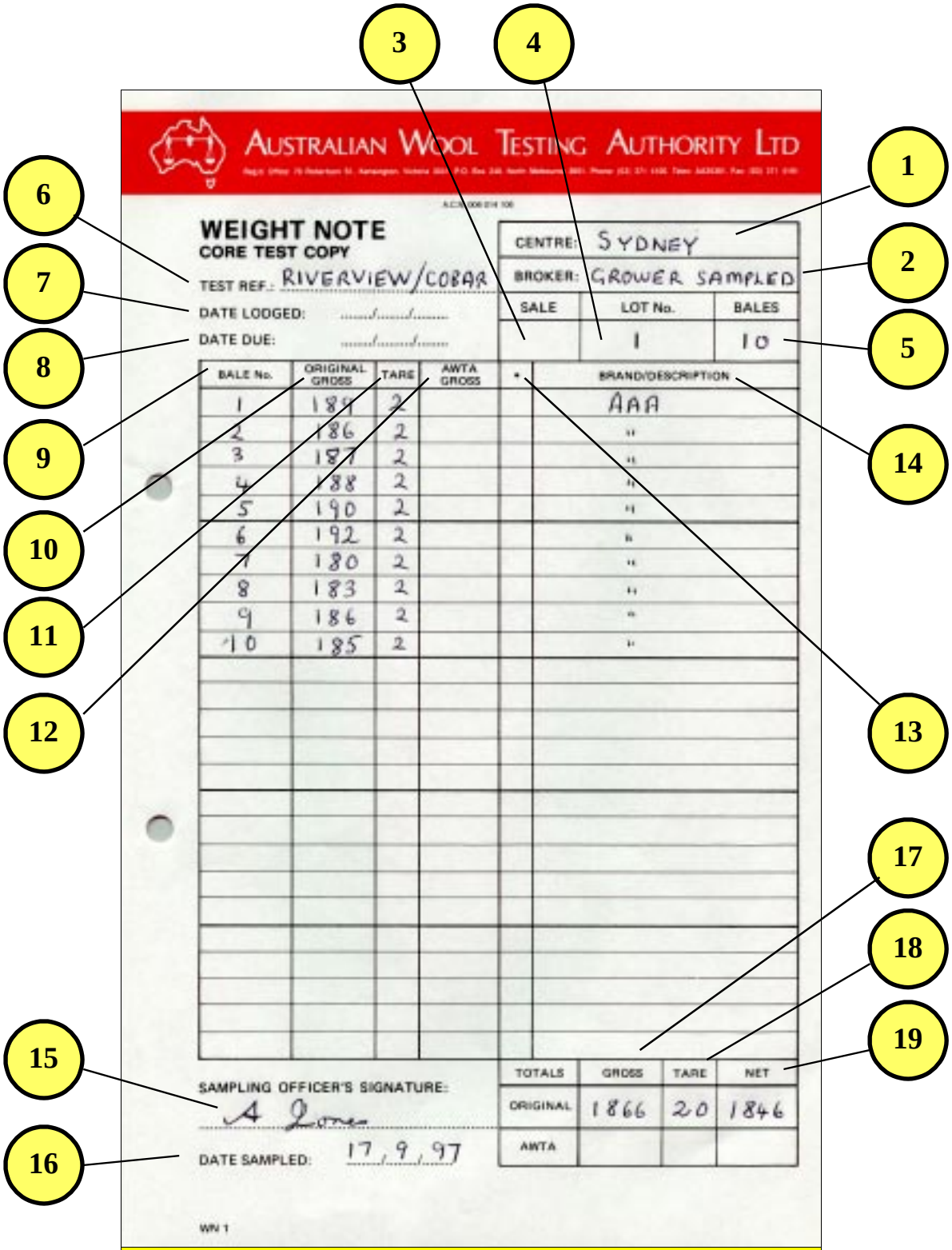


Figure 6: The circled numbers correspond to the numbered instructions in the text. The Weight Note is intended to provide the Laboratory with the gross weights and the tare weights for each bale in the lot represented by the full length and the core sample. These weights are required for the calculation of processing yields such as Schlumberger Dry Top and Noil Yield. The brand must also be recorded to enable the identification of the samples.

(15) Sign the Weight Note in the **SAMPLING OFFICERS SIGNATURE** field.

(16) Print the date the lot was core sampled in the **DATE SAMPLED** field.

(17) Calculate the **GROSS** weight for the lot and print this in the appropriate **TOTALS** field.

(18) Calculate the total **TARE** weight and print this in the appropriate **TOTALS** field.

(19) Calculate the total **NETT** weight and print this in the appropriate **TOTALS** field

Once the weight note is completed, and core sampling has also been completed place the **original** copy of the weight note in between the inner and outer plastic bags holding the core sample so that it can be read (this may be attached to the Test Request - see next section). Place the second (**white**) copy inside the full length sample bag so that it can be read. Retain the **yellow** and **green** copies for future

5.2 Report Test Request

The function of this document is to:

- identify the client, and the brand of the clip;
- provide instructions about the tests to be conducted;
- provide instructions about the return of the results; and
- provide information specifying the type of samples submitted for testing and how these samples were obtained.

The Test Request is a multi-purpose document designed for use by any client who requires a Test Report on either greasy or scoured wool. As a consequence some sections of the form will not be relevant to Test Requests for wool sampled in-shed by wool growers.

An example of this form is shown in Figure 7. **Complete one form for each lot, using block letters, as follows**:

(1) Print the **date** of the request in the **DATE** field.

(2) In the **CLIENT DETAILS** section, print **name**, **address**, **phone** and **fax**. This information is used by the laboratory for accounting purposes, and for any contact with the client that may be necessary.

(3) Copies of the Test Reports will be returned by **MAIL**, **FAX** or **MAIL and FAX**. If an original copy of the Test Reports is required, in the **RETURN OF RESULTS** section place an **X** in the **MAIL** check box.

(4) If the mailing address for the hardcopy of the Test Reports is different from that printed in the **CLIENT DETAILS** section then print this **name** and **address** in the **RETURN OF RESULTS** section of the request. If, in this section, the **Name** and **Address** is left blank then the laboratory will assume the mailing address is the same as the address printed in the **CLIENT DETAILS** section.

(5) If facsimile copies of the Test Reports are required print an **X** in the **FAX** check box. If this fax number is different from the fax number already printed in the **CLIENT DETAILS** section then print the alternative number in the spaces provided below the **FAX** check box.

(6) Test Reports can be displayed for electronic sale, or for sale by direct inquiry, in the AWTA Ltd WOOLINK system. Print an **X** in the **yes** or **no** check box to either accept or decline this option.

(7) The **CLIENT REFERENCE** section provides a 30 character field for recording information that will be printed on the Test Report. Print the brand, lot number (if allocated) and description for the lot in this section, or any alternative details required to identify the lot. This information is also displayed in WOOLINK.

(8) The **DECLARED DETAILS** section specifies the information required to calculate the clean weights for the processing yields. Print the **No. of BALES** in the spaces provided. This will be indentical to the **No. of BALES** printed on the Weight Note.

(9) Print the **Gross**, **Tare** and **Nett** weights in the spaces provided. This information can be copied from the Weight Note.

(10) In the **WOOL TYPE** section print an **X** in either the **Greasy** check box or the **Scoured** check box - whichever is relevant. If neither of these boxes are checked then the laboratory will assume the wool is **Greasy**.

(11) In the **TESTING REQUIREMENTS** section

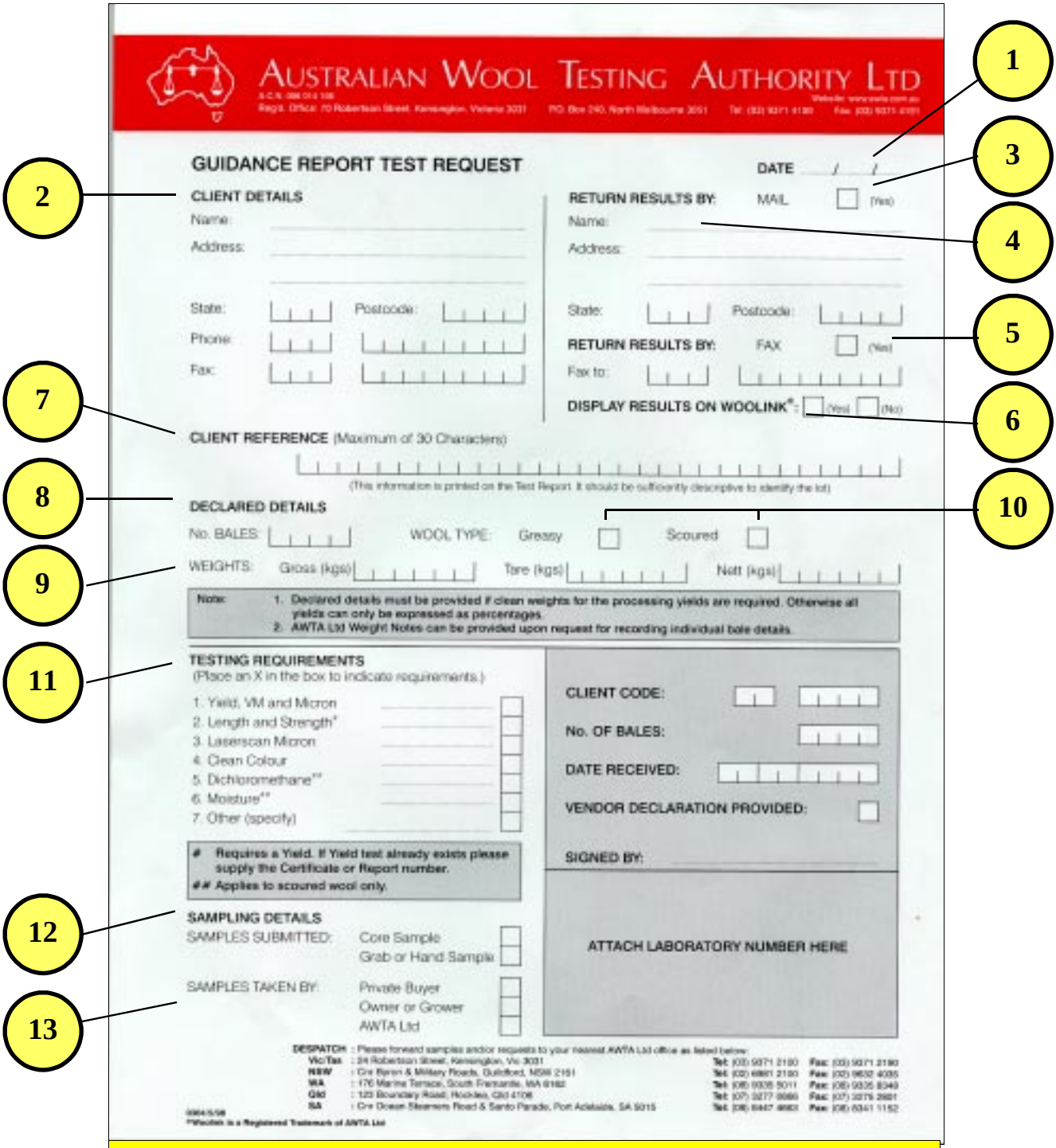


Figure 7: The Guidance Report Test request advises the Testing Laboratory what type of tests are required and the nature of the samples submitted. The sampling kit has a pad of these forms. One form must be completed for each lot and included with the sample when it is dispatched to the AWTA Ltd office. A copy of the weight note should be attached to the request if clean weights for the processing yields are required.

print an **X** in the check boxes adjacent to the tests required.

(12) The **SAMPLING DETAILS** section identifies the type of sample submitted. Print an **X** in the **Core Sample** check box if a core sample is submitted for testing. Place an **X** in the **Hand or Grab Sample** check box if a full length sample is submitted for testing.

Note: In some cases a full length sample may be submitted with no corresponding core sample, yet a Yield, VM and Micron is requested as well as a Length and Strength test. While this practice is not recommended, a Yield, VM and Micron test will be conducted on this sample, and a rider will be printed on the Test

(13) Print an **X** in the relevant check box to indicate whether the sampling was conducted by a **Private Buyer**, **Owner or Grower** or by **AWTA Ltd**. This information is used by the laboratory to determine the appropriate format for the final Test Reports.

(14) When the request is complete, attach the **yellow** copy of the **Weight Note** (this should already have been placed between the inner and outer bags containing the core sample), and place the request inside the plastic bag with the sample so that the request can be read. If a full length sample is also being submitted, open the plastic bag and insert the sealed core sample. Reseal the full length sample with a rubber band.

6. SAMPLE DISPATCH

Address samples as follows (postal addresses and contact numbers are also printed on the bottom of the Test Request).

- **NSW clients:**
  Sampling Controller - Sydney
  AWTA Ltd
  Cnr Byron and Military Rds
  Guildford, NSW 2161
  Ph: 02 9892 7051
  Fax: 02 9892 3195

- **QLD clients:**
  Sampling Controller - Brisbane
  AWTA Ltd
  123 Boundary Rd
  Rocklea, QLD 4106
  Ph: 07 3277 0866
  Fax: 07 3275 2801

- **VIC or TAS clients:**
  Sampling Controller - Melbourne
  AWTA Ltd
  24 Robertson St
  Kensington, VIC 3031
  Ph: 02 9371 2131
  Fax: 02 9371 2160

- **WA clients:**
  Sampling Controller - Fremantle
  AWTA Ltd
  176 Marine Terrace
  Sth Fremantle, WA 6162
  Ph: 08 9430 3606
  Fax: 08 9335 8248

- **SA clients:**
  Sampling Controller - Adelaide
  AWTA Ltd
  Cnr Ocean Steamers Rd and Santo Pde
  Port Adelaide, SA 5015
  Ph: 08 8447 4633
  Fax: 08 8341 1152

Freight arrangements will depend upon costs and the time required for return of the test reports. Preferred options are:

- Courier Services; or
- Express mail.

These generally provide direct delivery to the relevant office within a short period of time, thereby enabling more rapid return of results.

To follow up test requests or for general enquires, contact the nearest AWTA Ltd office (see Section 7.2) or the office to which which the samples were consigned.

7 OTHER ITEMS

7.1 Disclaimers

The Test Reports produced by AWTA Ltd on submitted samples carry the following disclaimer:

THIS TEST REPORT APPLIES ONLY TO THE SAMPLE TESTED. Except where the sample is drawn independently by AWTA Ltd, AWTA Ltd makes no warranty, implied or otherwise, as to the source of the tested material. The above test results are not certified due to the adoption of modified and/or non-standard procedures designed to supply THE CLIENT WITH GUIDANCE INFORMATION ONLY.

Except where precluded by law, no responsibility can be accepted by AWTA Ltd for any claim which may arise from any person acting on the information contained therein.

The procedures adopted by AWTA Ltd for the testing of samples submitted by wool growers, obtained by following the sampling and documentation procedures described in this manual, will be those defined by the relevant IWTO Specifications.

IWTO procedures will also be applied to any check testing of residual sample material.

7.2 AWTA Ltd Offices

HEAD OFFICE

70 Robertson St
Kensington
VIC 3031

PO Box 240
Nth Melbourne
VIC 3051

Ph: (03) 9371 4100
Fax: (03) 9371 4191
Email: awtainfo@awta.com.au
Website: www.awta.com.au

MELBOURNE LABORATORY

24 Robertson St
Kensington
VIC 3031

PO Box 240
Nth Melbourne
VIC 3051

Ph: (03) 9371 2100
Fax: (03) 9371 2190

SYDNEY LABORATORY

Cnr Bryon & Military Rds
Guildford
NSW 2161

PO Box 190
Guildford
NSW 2161

Ph: (02) 9681 1200
Fax: (02) 9632 4035

FREMANTLE LABORATORY

176 Marine Terrace
Sth Fremantle
WA 6162

PO Box 446
Fremantle
WA 6160

Ph: (08) 9335 5011
Fax: (08) 9335 8248

ADELAIDE OFFICE

Cnr Ocean Steamers Rd
& Santo Parade
Port Adelaide
SA 5015

PO Box 194
Port Adelaide
SA 5015

Ph: (08) 8447 4633
Fax: (08) 8341 1152

BRISBANE OFFICE

123 Boundary Rd
Rocklea
QLD 4106

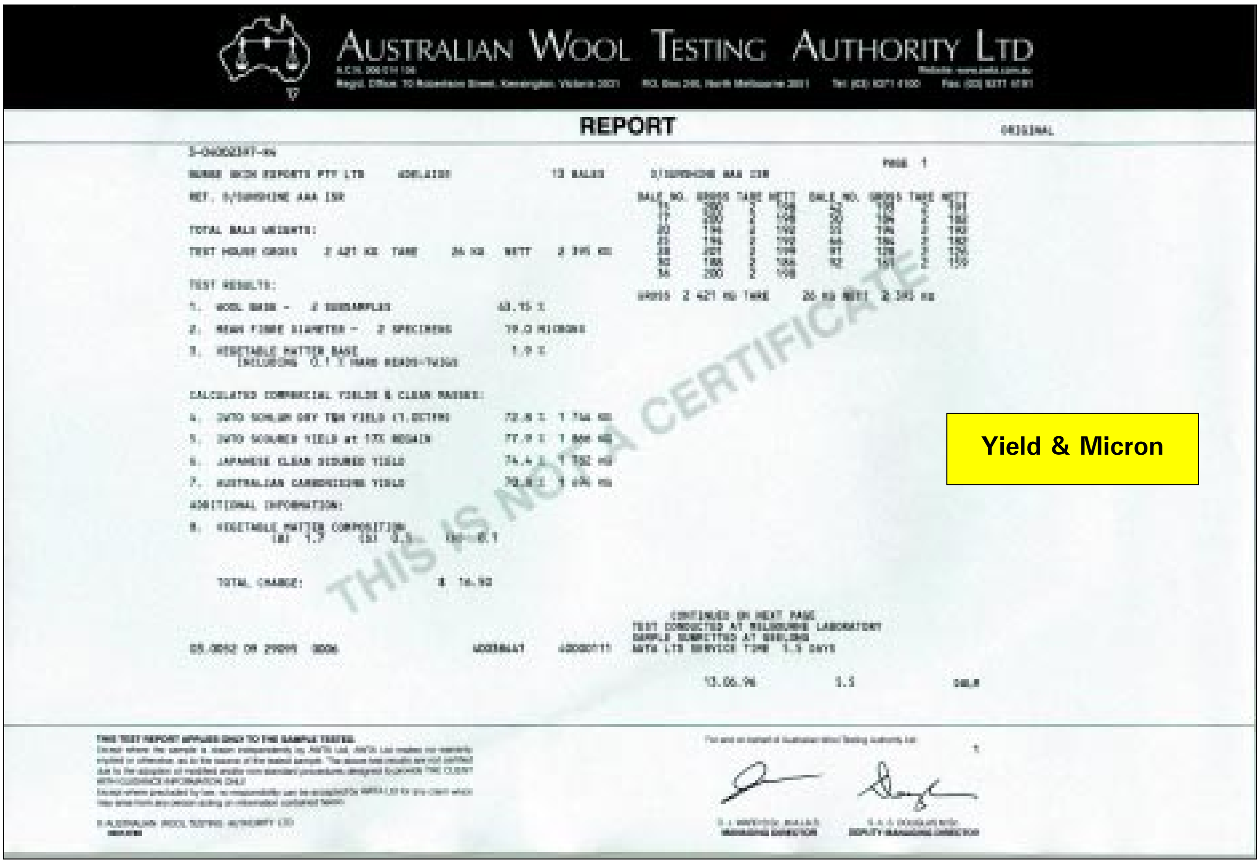
PO Box 667
Archerfield
QLD 4108

Ph: (07) 3277 0866
Fax: (07) 3275 2801

BRANCHES

Albany	(08) 9841 2177
Geelong	(03) 5229 2704
Goulburn	(02) 4821 8139
Launceston	(03) 6344 8833
Newcastle	(02) 4961 1197
Portland	(03) 5523 2986

7.3 Example Test Reports



AUSTRALIAN WOOL TESTING AUTHORITY LTD

REPORT

ORIGINAL

PAGE 1

TOTAL BALE WEIGHTS:

TEST HOUSE GROSS 2 421 KG TARE 26 KG NETT 2 395 KG

TEST RESULTS:

1. WOOL BASE - 2 SUBSAMPLES 63.15 %
2. MEAN FIBRE DIAMETER - 2 SPECIMENS 19.0 MICRONS
3. VEGETABLE MATTER BASE 1.9 %

CALCULATED COMMERCIAL YIELDS & CLEAN MASSES:

4. IWTO SCHLUMBERGER DRY TOP & NOIL YIELD
5. IWTO SCOURED YIELD at 17% REGAIN
6. JAPANESE CLEAN SCOURED YIELD
7. AUSTRALIAN CARBONISING YIELD

ADDITIONAL INFORMATION:

8. VEGETABLE MATTER COMPOSITION

TOTAL CHARGE:

CONTINUED ON NEXT PAGE

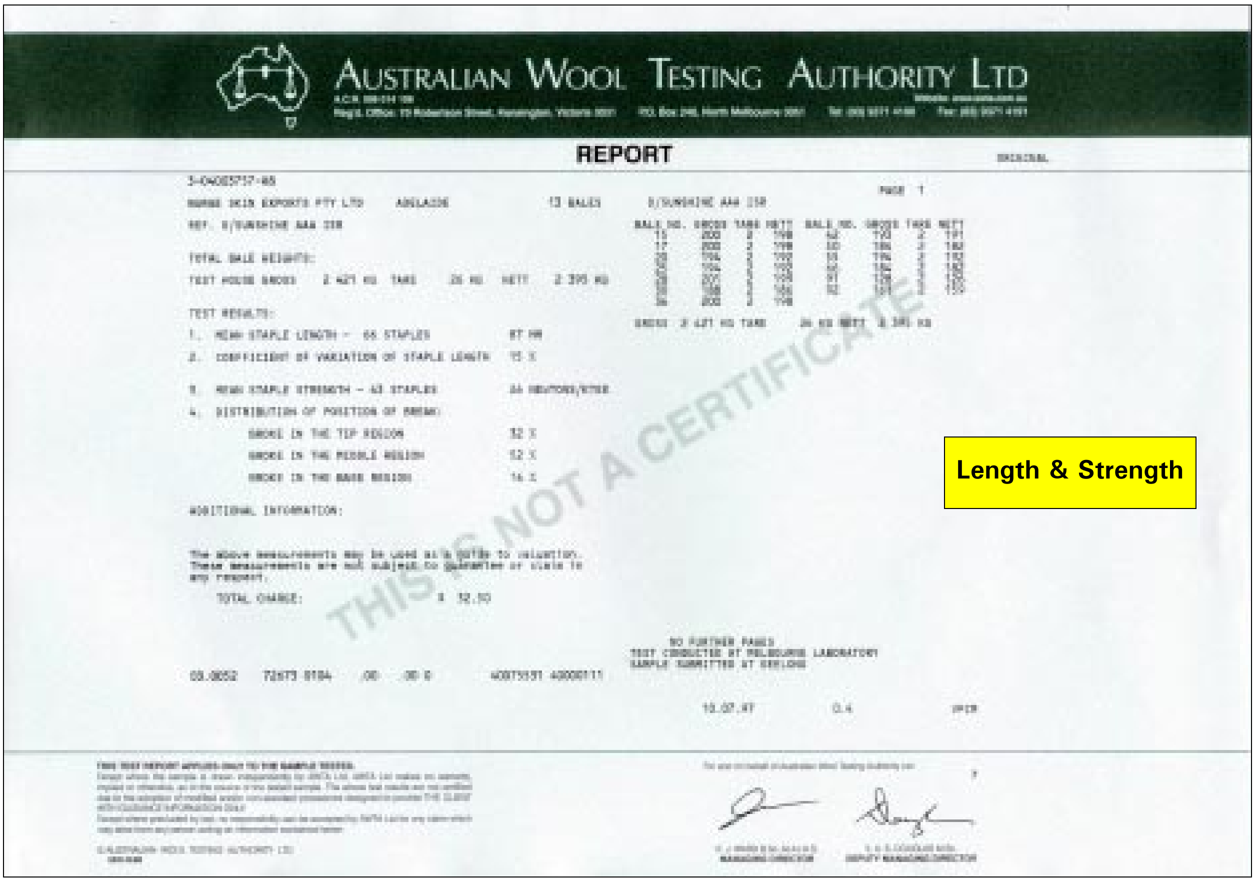
TEST CONDUCTED AT MELBOURNE LABORATORY

SAMPLE SUBMITTED AT GEELONG

THIS IS NOT A CERTIFICATE

THIS TEST REPORT APPLIES ONLY TO THE SAMPLE TESTED.

Yield & Micron



AUSTRALIAN WOOL TESTING AUTHORITY LTD

REPORT

PAGE 1

TOTAL BALE WEIGHTS:

TEST HOUSE GROSS 2 421 KG TARE 26 KG NETT 2 395 KG

TEST RESULTS:

1. MEAN STAPLE LENGTH - 66 STAPLES 87 MM
2. COEFFICIENT OF VARIATION OF STAPLE LENGTH 15 %
3. MEAN STAPLE STRENGTH - 63 STAPLES
4. DISTRIBUTION OF POSITION OF BREAK:
   - BROKE IN THE TIP REGION 32 %
   - BROKE IN THE MIDDLE REGION 52 %
   - BROKE IN THE BASE REGION 16 %

ADDITIONAL INFORMATION:

The above measurements may be used as a guide to valuation. These measurements are not subject to guarantee or claim in any respect.

TOTAL CHARGE:

NO FURTHER PAGES

TEST CONDUCTED AT MELBOURNE LABORATORY

SAMPLE SUBMITTED AT GEELONG

THIS IS NOT A CERTIFICATE

THIS TEST REPORT APPLIES ONLY TO THE SAMPLE TESTED.

Length & Strength

7.4 Technical Information

7.4.1 NSW Trials

A trial has been conducted in NSW, involving 33 fleece lots, and 8 skirting lots, to evaluate whether or not sampling fleeces on the table provides a sample that will give equivalent results to the sample obtained using mechanical grab sampling machines in wool stores. This trial involved sampling the lots on farm, using the procedures outlined in section 2.2.1(a) and 2.2.2 and then resampling them on receipt into store. The two samples were tested separately, using the IWTO Standard Test Methods. The results were then compared using statistical techniques detailed in the IWTO Specification IWTO-0-96 see if there were any significant differences.

This analysis of the fleece lots showed that on average, the results obtained for Staple Strength (SS) were statistically equivalent. However there was a small but significant difference in the Staple Length (SL) and the Coefficient of Variation in Staple Length (CVL). On average the SL of the samples obtained on farm was 2-3 mm longer than the SL of the samples obtained by mechanical grab sampling. The CVL was 2-3% lower.

These differences were probably due to insufficient care being taken on farm during sampling to ensure that the tufts obtained from each fleece were taken from random locations within the quadrant being sampled.

The importance of randomising the location on the fleece from which the tufts are withdrawn cannot be over emphasised. Systematic sampling from the same location will inevitably produce a bias in the sample and the ensuing test results. The magnitude of the bias will depend upon the location sampled as well as on the fleece characteristics of the particular mob of sheep.

This trial also included 8 skirting lots. The analysis showed that on average, the results obtained for Staple Strength (SS), Staple Length (SL) and Coefficient of Variation in Staple Length (CVL) were statistically equivalent. However, these results must be viewed with some caution due to the small number of lots involved. The number of lots was too small to detect the small differences in SL and CVL for fleece wools that were observed.

Manual core samples were also taken using the procedure in section 3.2.3. The analysis of these results showed that on average, the Yield, VM and MFD, measured on the in-shed core samples, were not significantly different from the certified results.

7.4.2 VIC Trials

A trial has been conducted in VIC, involving 32 fleece lots and 10 skirting lots, to evaluate whether or not the mechanical sampling system developed by the Seymour Group provides a sample that will give equivalent results to the sample obtained using mechanical grab sampling machines in wool stores. This trial involved sampling the lots on farm and then resampling them on receipt into store. The two samples were tested separately, using the Standard Test Methods developed by IWTO. The results were then compared using statistical techniques detailed in the IWTO Specification IWTO-0-96 see if there were any significant differences.

This analysis showed that on average, the results obtained for Staple Strength (SS), Staple Length (SL) and Coefficient of Variation in Staple Length (CVL) were statistically equivalent. However, it was also found that the samples obtained using the bale sampling device were selectively biased towards longer staples for long wools and short staples for short wools. This means that for wools with SL greater than about 85 mm the difference in staple length between the samples obtained on farm and those obtained using mechanical grab sampling in wool stores increased as the staple length increased, with the on farm samples giving the longer result. For wools less than 85 mm the opposite occurred.

The mechanical core sampling system developed by the Group was also compared with the Certified results. This trial also involved sampling the lots on farm and then resampling them on receipt into store.

The analysis showed that there was a small but significant difference in Wool Base, which may have been due to same samples not being adequately sealed from the air, resulting in a change in the moisture content. Small, but significant level dependent differences in Wool Base and MFD were also detected.

7.4.3 WA Trials

A trial has been conducted in WA, involving 27 fleece lots over a relatively narrow range of wool types, to evaluate whether or not sampling fleeces as they are placed in the bin provides a sample that will give equivalent results to the sample obtained using mechanical grab sampling machines in wool stores. This trial involved sampling the lots on farm and then resampling them on receipt into store. The two samples were tested separately, using the Standard Test Methods developed by IWTO. The results were then compared using statistical techniques detailed in the IWTO Specification IWTO-0-96 see if there were any significant differences.

This analysis showed that on average, the results obtained for Staple Strength (SS) were statistically equivalent. However there was a very small but significant difference in the Coefficient of Variation in Staple Length (CVL). On average the CVL of the samples obtained on farm was 1 - 2 % higher than the CVL of the samples obtained by mechanical grab sampling. This difference was largely due to one particular lot in the 29 lots involved.

The wools in this trial were much more uniform than the wools in the NSW trial. The range of micron and VM was much lower, and the wools were longer on average, and the range in length was half the range of the NSW wools. The range in SS was similar.

The use of this system is not recommended in sheds where the fleeces are rolled before being placed in the bin or the press. In such instances it is probable that a biased sample will be obtained due to the increased chance of sampling from the same location on each fleece. In the sheds involved in this trial the normal practice is to skirt two fleeces on the one table, without fully spreading the fleeces on the table. The fleeces are not rolled in any systematic way before being placed in the bin or the press.

This trial also evaluated whether testing the full length samples provided for staple measurement for Yield, VM and MFD will give equivalent results to the sample obtained using mechanical core sampling machines in wool stores.

This analysis showed that on average there was no significant difference in Wool Base and MFD but there was a small but significant difference in VM. Testing of the full length samples requires the laboratory to mechanically cut the staples into smaller lengths with a consequent risk of losing vegetable matter and some of the dust and sand. T**his procedure is not recommended for all wool types, because substantial changes in yield can oc-**

7.4.4 Copies of Technical Reports

Copies of the technical reports analysing the results of these trials can be obtained from:

Regional Manager

AWTA Ltd

PO Box 190

Guildford NSW 2161

Ph: 02 9892 7002

Fax: 02 9632 4035

APPENDIX A: Example Vendor Declaration

This sample declaration is provided without the assumption of a duty of care by AWTA Ltd. Legal or other advice should be sought before completing any declaration.

Declaration by the Wool Grower
In-shed Procedures

The wool grower (Grower) declares that the following statements are true and correct and represent the actions and procedures adopted during the preparation of samples (insert all references) ....drawn on (insert date).....

Sampling Assurance

The Grower declares that the sampling, packaging and documentation relating to both the core test and staple measurement samples has been performed in accordance with the procedures prescribed in the AWTA Ltd In-shed Test Reports - Recommended Sampling Procedures manual.

Classing

The Grower declares that the wool covered by this declaration has been prepared, classed, pressed and branded in accordance with the Code of Practice for the AWEX Quality System, Preparation of the Australian Wool Clips, 1998, or if varied, in compliance with the purchasers instructions.

Weights

The Grower declares that the declared weights appearing on the Test Report were established from (delete and initial those which do not apply):

(a) weights obtained when the bales were weighed on certified scales in the woolshed. (Attach a copy of the scale certification to this declaration.)

(b) weights obtained from non-certified scales which were separate from the wool press.

(c) weights obtained from uncertified woolpress scales.

Location

The Grower declares that the wool was sampled, and is currently located at:

.....

.

Declared by:

Grower Signature:

.....

.

Name (Please print in Block letters):

.....

.

Address:

.....

.

Witnessed by:

Witness Signature:

THIS IS A SAMPLE