AN INTRODUCTION TO
MERINO VISUAL CLASSING

PILOT VERSION

Includes content for half-day & full-day workshops on

Merino Visual Classing

Australian Wool Innovation

1. OVERVIEW

2. MERINO VISUAL CLASSING

1. Observation
2. Principles
3. Fit For Purpose / Flock Objective
4. Visual Classing (Yards)
5. Balancing Visual & Objectives
6. Further Resources
7. Career Paths in Wool

THE WORKSHOP FORMAT

Workshop options include:

- Half-day Introduction to Stockmanship
- Half-day Introduction to Merino Visual Classing

  or

- Full-day workshop on either topic

A full set of the slides are available on the AWI website

WORKSHOP PROGRAM

- Housekeeping
- Introductions
- Overview of today's program (Workshop topics)
- Practical activities
- Questions encouraged

1. OVERVIEW

- Visual sheep classing is practiced by all breeders keen to improve their flock
- Visual classing is quick, efficient, and cost effective for a large number of visible traits
- Essential to:
  - the quality of a woolgrower's flock
  - surplus sheep sale value; and
  - overall enterprise profitability

2. CONTENT

Merino Visual Classing

2.1 Observation

2.2 Principles

2.3 Fit For Purpose/flock objectives

2.4 Visual classing

- Conformation & constitution
- Wool traits
- Practical activities

2.5 Balancing visual and objective classing

2.6 Further resources

Observation

- Keen powers of observation are needed to assess every clue and indicator on offer (direct and indirect) to make the right selection decision
- Use sight, smell and touch
- Observe each individual sheep as every sheep is different!

Objective of sheep classing:

To identify and retain sheep that will improve flock profitability, both now and in the future

- Retain sheep that are the most profitable over the rest of their lifetime – best phenotype (actual performance)
- Retain sheep that will produce the most profitable progeny – best genotype (progeny performance)

2.2 PRINCIPLES

Income Traits $$$$$:

Fleece weight
Fibre diameter
Fertility
Body weight
Staple length
Staple strength

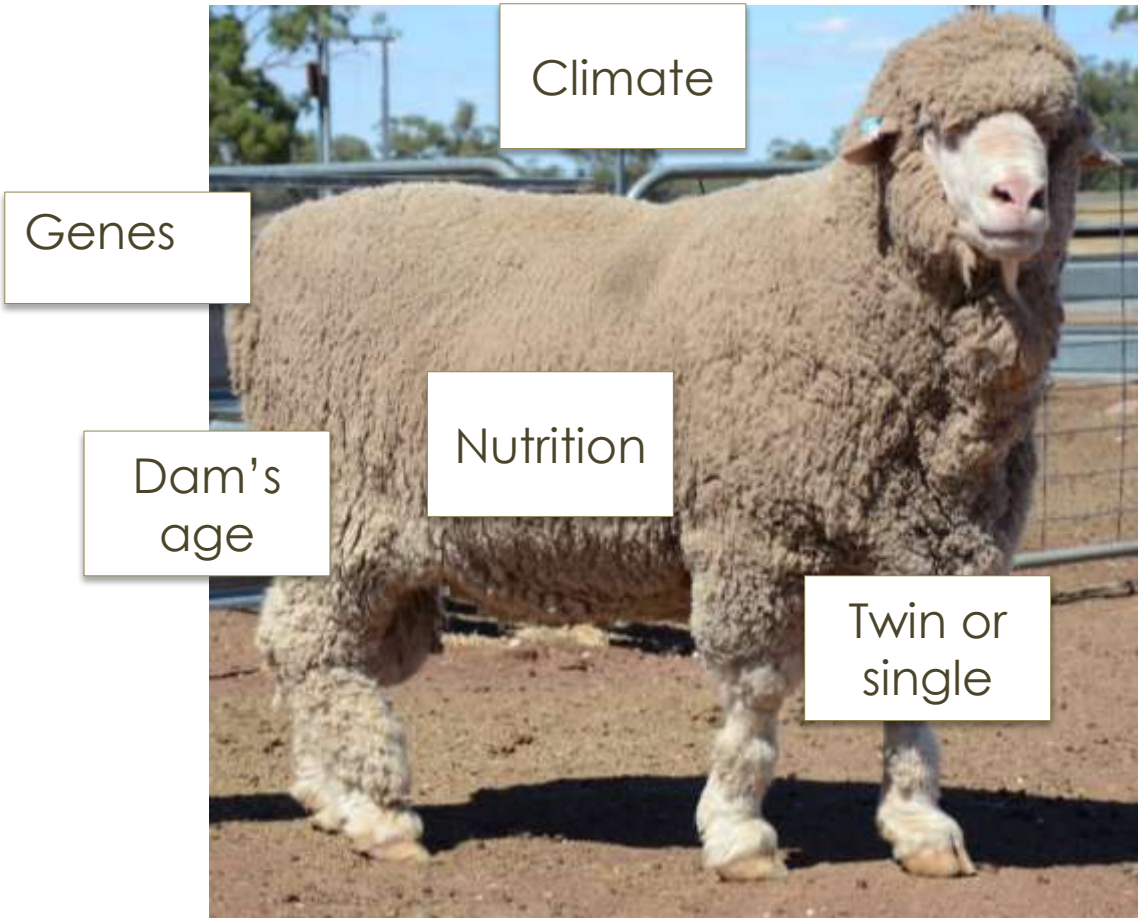
Traits that help realise income potential:

Constitution (doing ability)
Conformation
Longevity
Survival
True to type

Traits that reduce costs:

Low body wrinkle
Open face
Poll
Low breech wool cover
Wool quality (low fleece rot/flystrike)
Worm and dag resistance
Evenness (lower selling costs)

How a sheep looks (their phenotype) and their productivity is impacted by:



How an animal looks may not be a good indicator of its genetic potential

- An animal's start in life has an influence over its appearance:
  - Progeny born in a drought look worse
  - Single born lambs look better
  - Lambs born to experienced/older ewes look better
  - ET progeny born to a prime lamb ewe look much better than if born to a merino ewe
- BUT only genes are passed on;
  How well an animal was raised as a lamb, is not!

Animals that have better "natural" nutrition & care early in life have higher lifetime productivity:

- Better wool follicle development and higher fleece weights
- Higher progeny survival rates
- More likely to "show" themselves and be retained in the flock
- More mature at classing (early life effects have less impact)
- Higher rates of genetic gain

Well "cared for" sheep don't become better genetic sheep…

- But…… sheep need to be managed well over time, to breed better progeny (i.e. accuracy of selection increases)

2.2 PRINCIPLES

- To class sheep well, the many non-genetic variables between sheep need to be properly accounted for
- Need to class sheep within ‘management, age groups, dam and rearing types’ to best account for the variables which have the most impact

2.2 PRINCIPLES

- How sheep look (phenotype) and their productivity is impacted by:
  - their **genes** (genotype) } **only genes passed on to progeny**
  - the nutrition & care by the **ewe**
  - **climate** in which they live } **environment**
  - pasture and **nutrition** on offer

- With quite small differences in environment, identical genotype animals can have different phenotype (looks and productivity)
- Large differences in environment can cause very large differences in phenotype

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Effects of Environment and Genetics - **Genes**

- Where environmental influences are constant or they can be accounted for, genes have between 2% and 50% influence (heritability) on how progeny perform (phenotype). The heritability values for some key wool sheep traits are fibre diameter 50%; fleece weight 35%; fertility 3%; and yearling weight 35%
- Where ewe, climate and nutrition are not constant or cannot be accounted for, genes account for almost none of the differences as these environmental factors 'swamp' the genes and heritability quickly falls to zero
- Sheep Classers operate across environments and are very aware of how the environment affects sheep phenotype (looks and productivity).

Impact of Environment - **Ewe**

- Single lambs get more nutrition as a foetus and more milk and care from the ewe than twin lambs
- Lambs from mixed aged (experienced) ewes get more nutrition and care than lambs from maiden (inexperienced) ewes
- As lambs get older the differences due to dam and rear type reduce, but early life differences between animals can impact productivity for the rest of their life
- Classing at older ages (16 to 18 months) is more "accurate" compared to a younger age
- Mixed aged ewes should be classed in 'age/ management groups', i.e. twin, single or dry. It is more beneficial for long term breeding to cull younger inferior ewes and retain older more productive ewes

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Impact of Environment - **Climate**

- Sheep in warmer climates grow faster, as less energy is spent keeping warm
- Warmer climates have fewer diseases and parasites to impact on the young, growing animal
- Sheep grown in warmer climates tend to grow bigger, cut more wool and have higher fibre diameters (caused by the better climate)
- Sheep generally have to be classed later in colder, low growth, later maturing, high rainfall climates
- Ewes transported into cooler climates from warmer climates are unlikely to produce progeny like themselves

Impact of Environment - **Nutrition**

- Nutrition on offer depends on plant species, soil type and fertility, months of green feed and how long the volume and quality of dry feed holds on

- Sheep with better nutrition will grow faster, mature earlier, are bigger, have heavier fleeces and more lambs

- Differences in paddock nutrition within a property can have large impacts on how sheep look and perform. It is important to class sheep within 'management groups'. Different stocking rates can have a big impact

Summary

- Sheep productivity (phenotype) is affected by genes, the ewe, climate and nutrition
- To select animals with the best genes, need to minimise and account for the "confusing" variables (ewe, climate and nutrition)
- Good classing is reliant on good management and sticking to the protocols that optimise the chances of finding the animals with the best genes
- Classing should be done in same 'management groups' (age, whether twin or single)

When to class

- Classing should occur at the time when the sheep best express genetic merit (i.e. dags in spring, breech cover and wrinkle after shearing)
- The older the better, but balance is needed:
  - Effects of birth date, rearing type (single or twin), dam type (maiden or mixed age) reduce with age, i.e. the classer is more able to predict their genetic merit
  - If classing is conducted early, a second assessment at 16 to 18 months is ideal (>6 months wool)
- Classing on reproductive performance should be carried out at pregnancy scanning and then wet and drying at lamb marking. Retain ewes that fail to rear a lamb, cull ewes the second time they fail

Classing facilities

- Drafting gate (for quick assessment on size or age)
- Working race – raised race is ideal
- Classing box (better to assess sheep, scales for weight can often be added)
- Identify sheep by using:
  - raddle on poll, horn, top knot or back line
  - coloured or numbered ear tags, electronic tags, ear notch

Drafting gate

Working race

Classing box

Prior to classing

- A well-defined 5 year breeding objective, with aggressive targets for improvement, is the key to higher profitability
- The sheep owner and classer needs to have an agreed, clear and consistent objective for the flock
- Reassess pastures, enterprise mix, flock structure, current and future wool, sheep markets and management skills
- Assess the history of the mob, their recent management, mob size and the number needed to be retained

Prior to classing cont.

- Review recent flock progress
- Sheep presented to the classer should be in mob/management groups. If a tail has been taken out and fed, they should be classed as a separate group
- If some sheep have been culled before formal classing, inform the classer of details, otherwise they can get a false impression of flock progress
- Set minimum and maximum targets for key traits such as body weight, fleece weight, wool quality, fat and face cover

Different sheep suit different environments

- Sheep need to be fit for purpose, a good sheep for one production system may not suit another
- High rainfall country
  - Sheep need to have wools that handle water, sound conformation (particularly shoulder structure) and higher natural worm resistance
- Mixed farming - sheep used in crop management on fallows and stubbles
  - Sheep need balance of key attributes, wool cut, quick maturing, easy lambing to prime lamb sires

Different sheep suit different environments

- Pastoral - large areas, often lower and erratic rainfall
  - Sheep need to have large frame to handle large distances to walk for feed and water , nourishment on surface of the fleece to keep dust out of wool and need to be natural good doers

Conformation and Constitution

The following slides depict good and poor examples of traits listed in the 'AWI Visual Classing Merino Sheep Booklet'

There are many traits to select for in Merinos. The right balance of traits for a particular environment can take years to learn and the fine tuning of that balance is often subject to personal experience and opinion

2.4 VISUAL CLASSING - CONFORMATION

MUZZLE

Good

Muzzles are large, thick and soft with wide nostrils

Poor

Should be free of wool, coloured spots or smut. Note frosty face and smut on nose

Impact: The muzzle structure is an overall indicator of bone and body size. Large muzzles indicate good bone through the sheep. 'Frosty face' is an indicator of broader wool and primary fibre.

2.4 VISUAL CLASSING - CONFORMATION

JAW

Good

Teeth meet evenly on the underside of the top pad

Poor

Teeth are either too far back (as above) and are 'undershot' or are forward and 'overshot'

Impact: Undershot or overshot jaws lead to sheep having difficulties eating, particularly when feed is short.

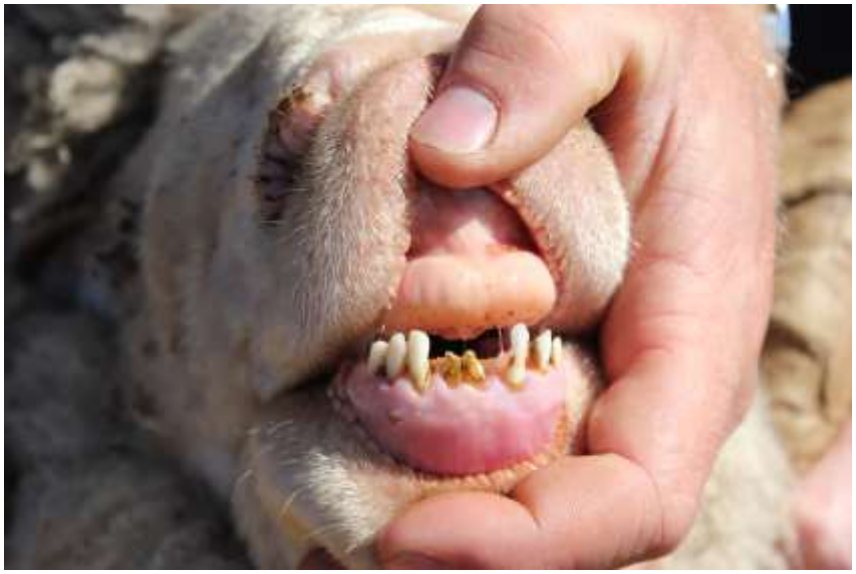
2.4 VISUAL CLASSING - CONFORMATION

TEETH

Sound Teeth

All Teeth are firm, strong and even in the gum.

Broken Teeth



Teeth show signs of wear, gaps appear between teeth and loose in the gum. Some teeth may be missing or badly worn.

Impact: Sheep with sound "mouths" can eat more than sheep with un-sound mouths especially when grazing very short pasture.

2.4 VISUAL CLASSING - CONFORMATION

BROWN & BLACK SPOTS ON EYES & NON-WOOL AREAS

Good

Free from any coloured spots

Poor

Coloured spots on and around face area

Impact: Black spots and ginger eyelashes can be associated with pigmented wool fibres. Often impacts saleyard/restocker prices.

2.4 VISUAL CLASSING - CONFORMATION

POLL

Good

Poll recess is free of heavy grease (yolk)

Poor

Poll should be free from scurs (small horn growth). Note injured eye from scur overgrowth

Impact: Wool grease and sweat in poll area can predispose sheep to poll strike.

2.4 VISUAL CLASSING - CONFORMATION

HORN CURL & CLOSENESS

Good

Horns should be wide and well clear of head

Tight

Tight curl and closeness of horns

Poor

Poor horn structure

Impact: Very wide horns make drafting and handling difficult. Tight horns make shearing difficult, increases incidence of fly strike and may restrict jaw movement. Horns should be kept trimmed.

2.4 VISUAL CLASSING - CONFORMATION

HORN SETTING ON HEAD

Good

Horn sites should be well spaced on the poll

Poor

Close horns often have an exposed skin wrinkle between the horn sites

Impact: Raised skin between close horn sites often bleed when fighting rams head butt which leads to higher risk of poll strike.

2.4 VISUAL CLASSING - CONFORMATION

FEET

Good

Feet and legs are straight and not splayed outwards

Poor

Feet and legs are twisted or splayed

Impact: Long or twisted feet and legs, reduce mobility, reduce feed intake and increases susceptibility to footrot and abscess.

2.4 VISUAL CLASSING - CONFORMATION

PASTERNS

Good

Pasterns upright, straight and not rolled over

Poor

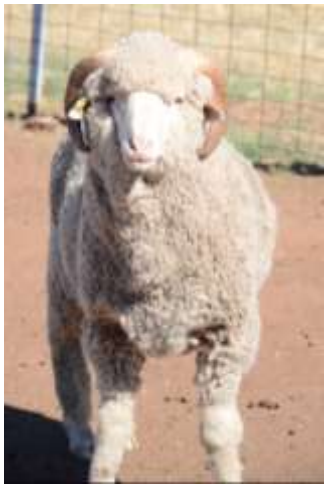
Pasterns laid back and rolled over

Impact: Poor pasterns can lead to long toes and affect mobility, feed intake and ram performance, particularly in wet environments. Ewes are most affected when heavy in lamb.

2.4 VISUAL CLASSING - CONFORMATION

BRISKET & FRONT FEET

Good



Feet and legs straight & wide set, housing a roomy chest

Poor

Feet twisted sideways, legs are too close. Narrow chest

Impact: Sound feet and legs are important for effective grazing. Narrow chested animals often lack spring of rib.

2.4 VISUAL CLASSING - CONFORMATION

HOCKS

Good

Straight, very important for joining (ram dexterity)

Poor

Legs turn inwards, note urine stain

Impact: Reduced ability to walk long distance, higher incidence of urine stain and dags, thus breech strike.

2.4 VISUAL CLASSING - CONFORMATION

NECK EXTENSION

Good

Neck extends from withers, folds free flowing, long bodied

Poor

Bone structure tends to be proportional throughout the body, short necks tend to indicate short and dumpy bodies

Impact: A well balanced and set neck is an indication of balance and length throughout sheep. A long neck often points to a longer body.

2.4 VISUAL CLASSING - CONFORMATION

SHOULDERS

Good

Set wide apart and broad Shoulders, legs and toes vertically aligned

Poor

Narrow shoulders indicate a narrow body and poor shoulder setting

Impact: Wool cutting area and carcass weight increases with good width of body. Indent behind shoulders can increase water damage to fleece.

2.4 VISUAL CLASSING - CONFORMATION

TOPLINE OR BACKLINE

Good

Topline long, level and square

Poor

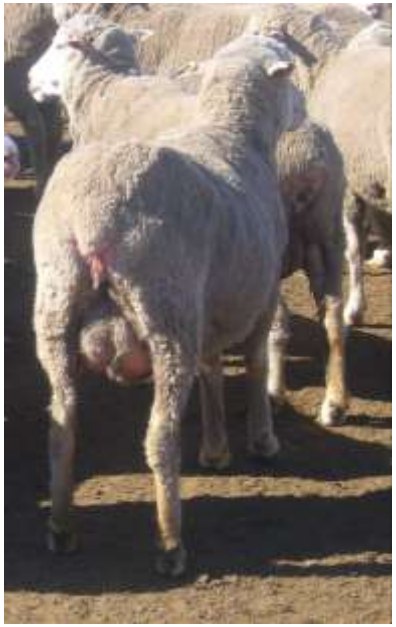
Swampy back often associated with poor shoulders and legs

Impact: Good length of body increases wool cutting area. Swampy backs can cause increase water damage, fleece rot and flystrike.

2.4 VISUAL CLASSING - CONFORMATION

HIPS & RUMP

Good



Hips square and rump extends from pin bone to the tail, good twist

Poor

Rump droops, poorly muscled hindquarter

Impact: Drooping rumps can impact back leg conformation. A good rump/twist indicates good meat traits (muscle).

2.4 VISUAL CLASSING - CONFORMATION

DEPTH OF BODY

Good **Poor**

A deep body Shallow bodied sheep

Impact: Deep body combined with length produces more fleece wool growing area, better meat traits and indicates good constitution (doing ability).

2.4 VISUAL CLASSING - CONFORMATION

SPRING OF RIB

Good

Well sprung, round and deep

Poor

Slab sided

Impact: Well sprung ribs indicate good constitution. Depth through rib area maximises wool growing area.

2.4 VISUAL CLASSING - CONFORMATION

TESTICLES

Good

Large, firm and of even size

Poor

Left side injured/ruptured
Right side too small

(Photo Credits: Ag Fact A3.4.6 1986, J W Plant
Revised by J T Seaman 2004 NSW DPI)

Impact: Small testicles indicate lower sire reproductive performance. Large testicles indicate higher daughter fertility. Damaged testicles may lead to or be caused by infection and inflammation, leading to lower semen quality.
NB: fly strike and foot abscess can cause short term infertility.

2.4 VISUAL CLASSING - CONFORMATION

UDDERS & TEATS

Good

Udder and teats are functional, symmetrical and free from defects

Poor

(Photo credit: NSW DPI, Chris Shands 2004)

Structurally defective with abnormalities, e.g. mastitis

Impact: Any damage or abnormality will reduce supply of milk to progeny. Lambs struggle to find teats with excessively woolly or daggy udders.

2.4 VISUAL CLASSING - CONFORMATION

BONE

Good

Normal boned

Poor

Lighter boned

Impact: Light boned sheep could well have had poor nutrition as a young animal. Heavier boned sheep are more likely to be single born, have heavier fleece weights & have larger carcasses.

2.4 VISUAL CLASSING - CONSTITUTION

DOING ABILITY/ROBUSTNESS

Good

A good "doing" sheep with higher fat cover (condition score)

Poor

Same mob, slower maturing

Impact: A good doing sheep is quicker maturing which leads to faster turnoff, better sale weights and better productivity and faster recovery after lambing and in poor seasons.

2.4 VISUAL CLASSING - CONSTITUTION

BODY WRINKLE

Good

No, or very little, wrinkle

Poor

Overly wrinkly

Impact: Large amounts of wrinkle predisposes sheep to grass seed contamination and breech strike, however generally they cut more wool. Lower wrinkle is generally associated with higher fertility, doing ability and ease of management.

2.4 VISUAL CLASSING - REPRODUCTION

WET and DRY

Cull ewes when they fail to wean a lamb for second time

Wet

After birth, full udders and teats sucked

Lamb & Lost

After birth no milk teat may have been sucked

Dry

No afterbirth, milk or sucking

Impact: Dry ewes will look better (phenotype) but a good twin rearing ewe is more productive. Care is needed classing mixed aged ewes. Need to class within groups ie dry, lambed and lost, single rearing ewes, twin rearing ewes.

2.4 VISUAL CLASSING – Condition Score

Assessing Body Condition score

Impact: Condition scoring sheep is a method of estimating the condition or "nutritional well being" or "body reserves" of sheep. Good condition (score 3 & 4) leads to increased productivity of wool, meat, number of lambs and survival.

2.4 VISUAL CLASSING – Condition Score

How to Condition Score

	Backbone	Short Ribs
Condition Score 1 	The bones form a sharp narrow ridge. Each vertebra can be easily felt as a bone under the skin . There is only a very small eye muscle. The sheep is quite thin (virtually unsaleable).	The ends of the short ribs are very obvious. It is easy to feel the squarish shape of the ends. Using fingers spread 1cm apart, it feels like the fingernail under the skin with practically no covering.
Condition Score 2 	The bones form a narrow ridge but the points are rounded with muscle. It is easy to press between each bone. There is a reasonable eye muscle. Store condition- ideal for wethers and lean meat.	The ends of the short ribs are rounded but it is easy to press between them. Using fingers spread 0.5cms apart, the ends feel rounded like finger ends. They are covered with flesh but it is easy to press under and between them.
Condition Score 3 	The vertebrae are only slightly elevated above a full eye muscle. It is possible to feel each rounded bone but not to press between them. (Forward store condition ideal for most lamb markets now. No excess fat).	The ends of short ribs are well rounded and filled in with muscle. Using 4 fingers pressed tightly together, it is possible to feel the rounded ends but not between them. They are well covered and filled in with muscle.
Condition Score 4 	It is possible to feel most vertebrae with pressure. The back bone is a smooth slightly raised ridge above full eye muscles and the skin floats over it.	It is only possible to feel or sense one or two short ribs and only possible to press under them with difficulty. It feels like the side of the palm, where maybe one end can just be sensed.
Condition Score 5 	The spine may only be felt (if at all) by pressing down firmly between the fat covered eye muscles. A bustle of fat may appear over the tail (wasteful and uneconomic).	It is virtually impossible to feel under the ends as the triangle formed by the long ribs and hip bone is filled with meat and fat. The short rib ends cannot be felt.

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more lambs, better wool, healthy ewes

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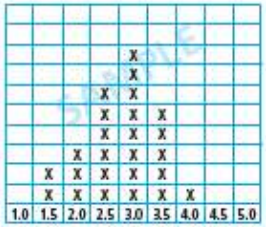
2.4 VISUAL CLASSING – Condition Score

'Random' sample at least 25 in the mob

Condition Scoring of Sheep

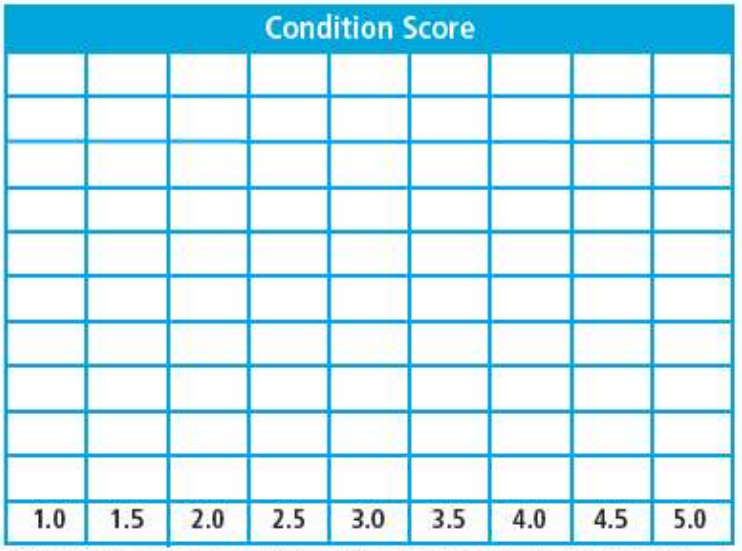
Place your thumb on the backbone just behind the last long rib and your fingers against the stubby ends of the short ribs. Use the scoring system described on the back. Half scores such as 2.5 or 3.5 can be used. Randomly score 25-50 sheep from the middle of the mob.



Recording the score

Record the condition score of each sheep with an 'X' on the chart. The middle score of the distribution is close to the average. In this example the median value is 3.0 but by using the chart you can see that the average is just less than 3.0.

Note any dry sheep CS < 1.5 or pregnant ewe CS< 2 should be removed and fed to gain weight.



If you wish to mark a score of .25 put the X on the appropriate vertical line.

For information on ewe condition score targets visit:

lifetimewool.com.au

2.4 VISUAL CLASSING - PRACTICAL YARD ACTIVITIES

- Activity 1
  Selection based on conformation and constitution traits
- Activity 2
  Selection on wool visual traits
- Activity 3
  Selection on combined traits

Peg top & bottom 2

✧ **ACTIVITY 1-** PEG TOP & BOTTOM 2 CONFORMATION & CONSTITUTION TRAITS

1. Size, body depth, length, top line, shoulder, structure
2. Jaw, muzzle, eyes, pigmentation, poll
3. Hocks, feet, pasterns
4. Testicles, udders
5. Overall conformation
6. Explanation and discussion of placings

2.4 VISUAL CLASSING – WOOL TRAITS

The following slides depict good and poor examples of wool traits listed in the 'AWI Visual Classing Merino Sheep' booklet

Sheep classing in the race

Wool classing in the shed

2.4 VISUAL CLASSING – WOOL TRAITS

FIBRE DIAMETER

"FIT FOR PURPOSE AND IN MARKET DEMAND"

Wool with lower fibre diameter will generally have softer handle and is better suited for "next to skin" clothing or suits.

Wool with higher fibre diameter will tend to have lesser handle and will be better suited to "off the skin" clothing (jumpers, coats etc).

Impact: Fibre diameter should be selected in balance with other traits, particularly fleece weight and fleece rot resistance. Visually selecting for fibre diameter can be unreliable.

2.4 VISUAL CLASSING – WOOL TRAITS

WOOL STYLE/CRIMP DEFINITION

Good

A good evenness of well defined crimp, style, colour and crimped to the tip. Deep crimp well aligned fibres

Poor

Uneven and vague crimp definition. Flat poor alignment fibres

Impact: A consistent and pronounced crimp throughout the fleece is desired. Better style wools are less prone to fleece rot & flystrike thus delivering more wool into the main fleece lines and can attract less discounts in a poor market.

2.4 VISUAL CLASSING – WOOL TRAITS

HANDLE

Good

Soft handling, smooth and easily compressed

Poor

Harsh handling wool often has flat crimp

Impact: Soft handle (the feel of the wool) is important. Harsh handle and rough texture indicates broader fibre and higher prickle factor.

2.4 VISUAL CLASSING – WOOL TRAITS

PIGMENTED WOOL

Good

Clear of any pigmentation

Poor

Pigmentation - coloured spots

(Photo Credits: Fact Sheet FS No: 21/01
Used by permission from SARDI

Impact: Random spots within the flock pose significant risk to contamination of the whole clip. Any sheep with pigmented wool, should be culled at lamb marking or weaning. They should not be paddocked with white-woolled sheep.

2.4 VISUAL CLASSING – WOOL TRAITS

STAPLE LENGTH

Good

Staple length – 65mm

Poor

Staple length – 45mm

Impact: Staple length can make a big difference to wool cut, especially on low wrinkle sheep. Should aim for sheep with long, free-growing, dense wools. Use index finger to compare wool length.

2.4 VISUAL CLASSING – WOOL TRAITS

WOOL DENSITY

Good

Fibre density is high and also in balance with good staple length

Poor

Fleece is thin or open, note weathered tip

Impact: Sheep with a dense fleece will cut more wool than sheep with a thin or open fleece. Dense fleeces are better at keeping out dust and reduce staple weathering. Sheep with skin/wool type that is short, tight and dense will often be the first to suffer in poor seasons.

2.4 VISUAL CLASSING – WOOL TRAITS

FLEECE WEIGHT

Good **Poor**

Impact: Fleece weight can be visually assessed along with indirect components of wool growing area, density and length. Most stud and some commercial breeders also weigh fleeces at shearing. When selecting for fleece weight, traits to watch are higher fibre diameter, skin wrinkle, lower fat and lower reproduction.

2.4 VISUAL CLASSING – WOOL TRAITS

WOOL COLOUR

Good

Wool is bright and white

Poor

Wool is dull and yellow in colour

Impact: Bright wools tend to be more resistant to fleece rot and flystrike and more likely to be included in the main fleece lines at shearing. Yellow wool tends to be more susceptible to fleece rot and has lower character and can be discounted in price.

2.4 VISUAL CLASSING – WOOL TRAITS

WOOL CONDITION/YIELD

Good

Adequate coating of wax and nourishment

Poor

A dry wool, lacking nourishment

Impact: Nourishment and wool "grease" protects fibre from sun and water damage. Insufficient grease results in dry wool, excessive grease results in low yielding wool. Hoggets and dry sheep tend to have more wool nourishment and grease. Moderation is best, this varies between wool growing regions.

2.4 VISUAL CLASSING – WOOL TRAITS

WOOL COVER

Good

A good amount of covering with good density

Poor

Bear headed sheep tend to have less wool on legs and bellies but have less grass seed in their wool and less wool blindness.

Impact: A balance is required which varies between regions. Low cover sheep tend to cut less wool but have more lambs. Cover is indirectly associated with fleece weight. Lactating ewes lose wool on the points (strip off) but regain it once the lamb has been weaned

2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

- **ACTIVITY 2 -** PEG TOP & BOTTOM 2 FOR EACH OF THE WOOL TRAITS

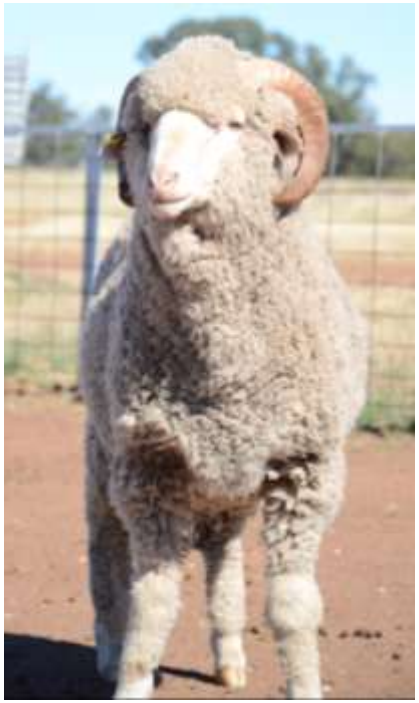
1. Staple length
2. Wool coverage
3. Wool/fibre density
4. Colour, handle or softness, crimp frequency
5. Explanation and discussion of placings

✧ ACTIVITY 2 - FULL DAY

6. Body wrinkle
7. Trueness to type, flock strengths and areas to work on
8. Overall
9. Explanation and discussion of placings

2.4 VISUAL CLASSING - COMBINED TRAITS

- All traits need to be combined to make an overall classing decision



2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

✧ **ACTIVITY 3 -** COMBINED TRAITS

Selection on combined traits:

- Conformation
- Constitution
- Wool quality
- Wool quantity

Be methodical - keep the same approach for each sheep

2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

Suggested steps for selecting combined traits:

1. Stand back and watch all the sheep enter the race, take a quick visual appraisal of each sheep (if possible use a classing box to make the process easier)

2. Identify (raddle or spray) obvious culls e.g. short bodied, narrow bodied, poor shoulders, small, over-developed – obvious culls not to be looked at again

3. Start at front of race, working back

4. Start with the mouth and face, look at front legs and feet, then the body, finishing looking at the hindquarters, hocks and twist

2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

Suggested steps for selecting combined traits:

5. Check wool quality and quantity
6. Try to make it quick, your first impressions are generally right
7. Check the sheep running through the draft or count out pens for hocks, anything missed, or walk them between you and check feet and legs
8. Very important to keep count to ensure numbers are in line with percentage available to be taken out. This is usually done after the first few races.

2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

- **ACTIVITY 3 –** HALF DAY: COMBINED TRAITS - YOU ARE THE CLASSER NOW!

1. Overall appraisal
2. ID top 2 using pegs
3. ID bottom 2 using pegs

- Short verbal description of placings - why?
- Provide short description of how you weighted up the placings

2.4 VISUAL CLASSING - PRACTICAL ACTIVITY

✧ **ACTIVITY 3 -** FULL DAY: COMBINED TRAITS – YOU ARE THE CLASSER NOW!

1. Overall appraisal
2. ID top 5 using pegs
3. ID bottom 5 using pegs

Draft, if possible

- Short written & verbal description of placings
- Provide short description of why
- Provide short description of how you weighed up the placings

Advantages of visual classing

- A classer is an important source of information about sheep management for the flock owner
- A classer sees how sheep from a range of bloodlines are performing in different environments and in a similar environment
- Visual classing is quick, efficient and cost effective for a large number of visible traits
- Affordable way to reclass breeding ewes at every joining for lifetime quality and productivity (need to class within management groups)
- Important to combine visual classing with objective measurement. The best balance can vary between regions, sheep type and breeding direction

Advantages of visual classing

- There are important traits that are difficult and costly to objectively measure
  - Susceptibility to fleece rot and flystrike
  - Brown spots on faces and toes, black wool often picked up at shearing (reward shearers!)
  - Structure – back, shoulders and feet
  - Fleece nourishment, dust penetration, staple formation

Advantages of visual classing

- Even lines of sheep are important
  - Trueness to type and eveness improves predictability and buyer confidence
  - More likely that stock can be sold and transported in efficient truck loads/pen sizes, for both buyer and seller

Advantages of objective assessment

- Easier to adjust for non-genetic influences (dam and birth type), when classing at young ages
- Assists selection when there are many traits to select for and where traits are not easily "visible"
- Easier to find smaller differences in economically important traits
  - ie progeny testing sires for fleece weight
  - Fibre diameter, especially when there are high market premiums for lower fibre diameter
- Higher accuracy in determining meat and wool traits/values but higher costs

Advantages of objective assessment

- Assists when there are several antagonistic traits (traits that work against each other)
  - Lower wrinkle and higher fleece weight
  - Lower fibre diameter and higher fleece weight
  - Higher fertility and higher fleece weight
  - Higher fat and higher fleece weight
  - Can combine several traits into 1 index

Advantages of objective assessment

- Breeding values provide better information (but are more expensive) for ranking animals on genetic merit
- Breeding values work better when all sire and dam pedigrees are known (uses all information on related animals, aunts, uncles, cousins, siblings, etc.)
- Where pedigree is not known, or there is a lack of linkage, within flock breeding values may be a better option

Advantages of objective assessment

- Australian Sheep Breeding Values (ASBVs) are good to communicate and monitor productivity progress compared to raw data

Table 1. Minnipa Flock Yearling Average Australian Sheep Breeding Values

Year	Ywt	Yfd	Ycfw%	Yemd	YFat	EBWR	DP+
2010	2.0	-0.9	12.5	-0.1	-0.2	-0.3	134.4
2011	2.9	-0.5	13.8	-0.3	-0.3	-0.4	134.3
2012	3.9	-0.4	14.1	0.2	-0.1	-0.6	137.5
2013	5.1	-0.4	16.6	0.1	-0.2	-0.6	142
Change	+4.5	+0.2	+5.3	+0.2	0.0	-0.3	+14.1

ASBVs show clear trends

Table 2. Minnipa Flock Yearling Average Raw Data Values

Year	Ywt (kg)	Yfd (µm)	Ygfw (kg)	Yemd (mm)	Y Fat	EBWR (visual)	Y age (average)
2010	50.1	18.1	3.4	30.8	2.9	2.6	318
2011	47.1	18.6	3.7	34.7	3.7	2.2	327
2012	51.2	17.4	3.6	30.9	2.6	2.9	333
2013	46.3	17.5	3.2	27.7	3.0	3.8	312
Change	-3.8	-0.6	-0.2	-3.2	+0.1	+1.2	NA

Raw data trends heavily influenced by non-genetic environmental influences

Source : SARDI

Combining visual and objective assessments

- The management protocols required for good assessments are very similar for both methods
- Visual classing is used by all studs, the emphasis they put on each trait can vary enormously
- All studs use objective measurement. Some use raw data, some use within-flock breeding values (FBVs) others use across flock breeding values (ASBVs)
- Breeding Values should largely match visual assessments, particularly for older sheep, if they don't, then need to review why

2.5 BALANCING VISUAL AND OBJECTIVE CLASSING

Combining visual and objective assessments

- The most measurement orientated breeders only achieve 50% of the theoretical rate of genetic gain. This is because they select for a range of visual traits not included in the objective index and have management protocols not only driven by profit
- Most breeders achieve a rate of gain 30% or less of the theoretical rate of genetic gain, i.e., they place an even greater emphasis on visual traits not included in the objective index

2.6 MERINO VISUAL CLASSING – RESOURCES

Further resources:

- *Visual Classing Merino Sheep* - AWI Booklet, AWI website
- *Visual Sheep Scores Version 2*, 2013, AWI & MLA, AWI website
- *ASBVs A guide for ram buyers*, Sheep CRC June 2013
- *A Pocket guide to ASBVs – Sheep Genetics*

Workshops:

- Bred Well Fed Well (MLA workshop)
- Ram Select (Sheep CRC workshop)
- National Merino Challenge www.awinmc.com.au

2.6 MERINO VISUAL CLASSING – RESOURCES

Stud Merino Breeders Websites:

- Australian Association of Stud Merino Breeders
  www.merinos.com.au
- State Merino Breeder websites
- http://www.lifetimewool.com.au/conditionscore.aspx

Other:

- Merino Bloodline Performance
  www.dpi.nsw.gov.au/agriculture/merino-bloodline-performance
- Merino Sire Evaluation
  www.merinosuperiorsires.com.au
- Sheep Genetics
  www.sheepgenetics.org.au
- State DPI factsheets/agfacts

2.7 CAREER PATHS IN THE WOOL INDUSTRY

- Focus is on 25 case studies of current 30 to 40 year olds that have taken a wide diversity of career paths that are **currently** available to young people keen for a career across the wool industry
- Will be available on AWI's Website in May 2016

2.7 JACKEROOS, JILLEROOS, STOCK HANDLER & THE OVERSEER

The definitions:

- A stock handler is a person who looks after livestock on a property, station, yards or feedlot
- A young trainee is known as a jackaroo or a jillaroo
- A head stock handler or overseer is responsible for a number of employees and livestock operations where they are employed

2.7 THE OVERSEER OR HEAD STOCKMAN

The overseer or head stockperson:

- Is responsible for a number of workers
- Plans livestock operations
- Supervises livestock operations, shearing, crutching, lamb marking , classing, joining, feeding and watering runs
- Managing repairs and maintenance on fencing, yards, vehicles and bikes, etc.

2.7 CAREER STEPS INTO ON FARM WOOL INDUSTRY

1. Jackarooing/Jillarooing
2. Working on family farm
3. Traineeships
4. Vocational Education Training Courses
5. Sub-overseer, head jackeroo, overseer
6. Agricultural tertiary education
7. Other tertiary education
8. City job first
9. Management, consultant
10. Mining or other regional jobs first
11. Goals outside agriculture

Thank you

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