Visual aids to increase the awareness of condition scoring of sheep - a model approach

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Abstract. Condition scoring of sheep is widely recognised as a farm management tool to monitor the nutritional status of sheep. The methodology or the interpretation of scores has not been well understood by farmers, thus uptake on farm has been limited. Real sheep are the best way to demonstrate and practice condition scoring, but that is not always practical. To standardise scoring, the WA lifetimewool project developed condition score models in 2005 which were woolly replicas of the short rib area of a sheep. These were attached to a display board for static displays, but this did not clearly show how the practice was to be performed. To put the condition score models into a practical context, a series of flat display sheep were developed to illustrate how easy and valuable the practice is. The five sheep are painted in bright colours to make them stand out, and provide clear messages to farmers, e.g. the skinny red one says "Don't join". To engage farmers, there is a white sheep for farmers to test their skill with the message "Feel me – you know you want to!" Themed messages tailored for situations are attached to each sheep, they include the importance of condition score on reproductive capacity, worm control options and lamb survival. People engaged with the flat sheep at field days and were keen to find out more. Passers-by would feel them, even if they did not stop for long. People said they had a clearer understanding of condition scoring after seeing the display. Expecting farmers to return to their own farm and score their own sheep is naïve. However, the interactive display raised awareness of condition scoring which may eventually lead them to join a Lifetime Ewe Management group to hone their skills and integrate condition scoring into their management practices. The key learnings of the project were that our ability to influence farmers at field days is directly affected by our display materials, real sheep are best to demonstrate the practice of condition scoring, but fake sheep with condition score models are almost as good and easier to use.

Condition scoring as a management tool

Condition Score (CS) is a process for assessing body reserves (quantity of fat and muscle) on a mature sheep. It is a simple and quick assessment tool for managing ewes to targets. However, it is not practiced on farm as widely as it should be.

The condition scoring system as described by Jeffries (1961) using a six point scale, is the basis of the current condition scoring scale 1-5. Condition score 0 is not included in the scale as a sheep in CS 0 is on the point of death with no detectable fat or muscle between the skin and bone. Condition score 5 is so fat that the spine and ribs can't be detected due to very full muscle and fat deposits.

A condition score profile sets the CS targets for key times during the ewe reproductive cycle. There are a number of key benefits from managing ewes to follow a pre-determined condition score profile through the year (Trompf et al. 2009). These include the following:

- Ewes in higher condition score at joining conceive more lambs.
- Ewe mortality during late pregnancy and lambing is greater for over thin and over fat ewes.
- Ewes in better condition at lambing have heavier lambs that are more likely to survive.
- Ewes in better condition at lambing produce lambs that produce more wool that's finer throughout their lifetime.
- Whole-farm profit can be increased by managing ewes to achieve condition score targets.

To manage a mob of ewes to achieve the target CS profile, it is necessary to monitor a random sub-sample of twenty five to fifty ewes to decide how to adapt their nutritional management. The current average mob condition score will be result of their previous CS, the nutrition they have been experiencing and the nature of their nutritional demand.

Condition score is preferred to liveweight for managing ewes, because it is independent of frame size, pregnancy status and fleece weight. It is very difficult to judge the CS of sheep visually, for at least half of the year as they are covered by wool. Additionally, when you can see a change, it may too late to economically rectify.

"Monitoring condition score of ewes allows you to make informed feeding decisions. So getting your hands out of your pockets and using them to condition score is a necessity." David Robertson, Austral Park, Coleraine, Victoria (from the Lifetime Ewe Management manual (Trompf et al. 2009))

Plate 1. The folding sheep context the models and provide simple messages

Source: Maloney 2008

In 2008, five sheep cut outs, shown in Plate 1, were designed and constructed to context existing sheep condition score models. The "flat sheep" were intended to be used at sheep industry field days to increase the awareness of condition score as an indicator of sheep nutritional status. They also demonstrate the ease of carrying out the practice of condition scoring. They complement existing tools and add value to the condition score models.

The technique of condition scoring

As outlined in the Lifetime Ewe Management manual (Trompf et al. 2009), condition score is assessed by feeling the amount of soft tissue (fat and muscle) over the loin region of the sheep following a six point scale (0-5) described by Jeffries (1961). It is performed best along a sheep handling race, where individual animals can be felt easily.

Plate 2. Demonstrating the site and hand position for condition scoring. The line indicates the position of the last long rib

Source: Suiter, 1994

The steps are:

- Locate short ribs, directly behind the last long rib (the 13th) as shown in Plate 2. Using the balls of the fingers and thumb, try to feel the backbone with the thumb and the end of the short ribs with the fingertips immediately behind the last long rib.
- Feel the muscle and fat cover around the ends of the short ribs and over the backbone. Also feel the fullness of the eye muscle.
- The degree of roundness on the ends of the bones, the amount of tissue between the bones and the fullness of eye muscle determine the condition of the animal - the CS.

Unfortunately to those unfamiliar with condition scoring, the whole process can seem a bit difficult. The technique of feeling the cover over the loin and then converting the sensation to a condition score without assistance is unlikely to be adopted due to a lack of confidence in their ability to master the process.
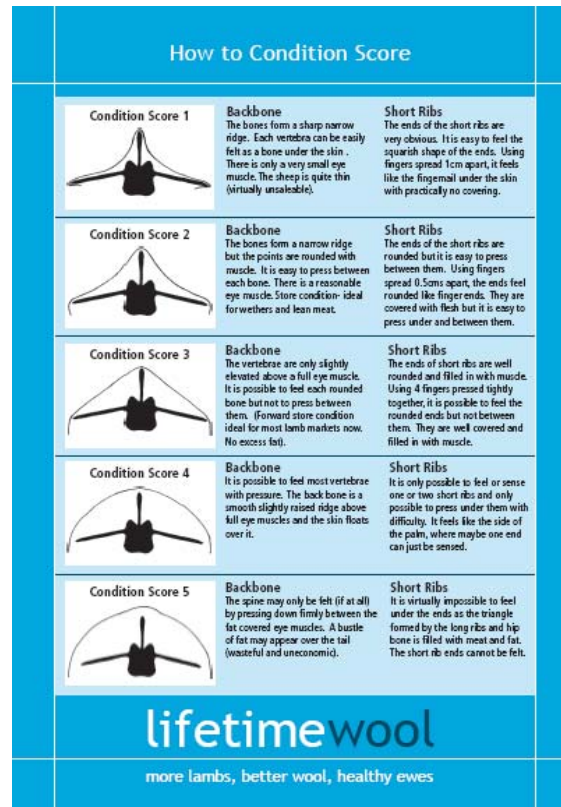
Live sheep to teach condition scoring

Using live sheep, in a sheep handling race, is the ultimate method of teaching condition score. The deliverer would condition score a range of sheep which the participants could learn from. They would then need to practice the skill regularly. However this is unlikely without the participants' prior engagement in a Lifetime Ewe Management group.

Condition score reference card to assist with condition scoring

In response to this issue, a description of what would be felt when condition scoring sheep was developed. A cross sectional diagram, representing the distribution of the muscle and fat over the short ribs and backbone, accompanied the description. As part of the lifetimewool project, a laminated reference card, as shown in Plate 3, with the description and diagrams of the range of condition scores 1 to 5 was produced.

Plate 3. Laminated condition score reference card

Source: Lifetimewool project

As a tool, the laminated guide is easily referred to, is durable and relatively small in size. It concisely describes and shows each of the condition scores in the range. However, it is best suited to those farmers and livestock managers who have some degree of prior awareness and experience in condition scoring.

Condition score models assist further with condition scoring accuracy

In 2005, to standardise scoring and to build a level of experience in condition scoring, the WA lifetimewool project developed condition score models which were woolly replicas of the short rib area of a sheep (Plate 4). The reference models are made by a taxidermist using casts of real backbones and short ribs. The range of CS models, score 1-5, have muscle and fat built up on them to simulate increasing condition score, and are covered by a woolly mitt.

Whilst realistic, these models don't give the full picture. Where are the short ribs located on a sheep, and how would the operator actually go about the process? Also what differences in reproductive performance, lamb survival, ewe mortality would be reflected by different condition scores? The models in conjunction with the descriptions and diagrams do however provide a condition score standard that reduces operator variability.

Plate 4. Assessing condition score model of CS 3.5

Source: Bicknell 2009

Display board combines the descriptions, diagrams and models

To value add the current condition scoring tools at field days, a display board was constructed to combine the descriptions and diagrams of condition score with the models. It also provided additional information about the lifetime wool project. The display board, as seen in Plate 5, allowed people to feel the condition score and directly relate that feeling to the description and associate the importance of condition score with ewe performance.

Plate 5. Display board combining descriptions, diagrams and models

Source: Curnow 2007

However, the models on the display board still didn't allow participants to relate the experience to a real sheep, because the models are a sub-section of an animal, and as such easily lose context. The production responses (e.g. lamb survival, ewe mortality) that correspond to varying condition score, and thus the important messages of managing ewe condition score, were also missing.

There also was a level of complexity that came from relating the model to the words and the diagrams and the other models all at once.

Conception of the flat sheep

To demonstrate condition scoring and raise people's awareness of the practice, a range of real sheep would be ideal. However, the logistics of sourcing and managing live animals, as well as the animal ethics approvals, to do this at an event that is not held on a farm, such as a show or field day, are prohibitive. To display a sheep in less than condition score 2, would also create major animal welfare issues.

The flat sheep were created to context the condition score models. They provide simple messages to accompany the condition score models when they are felt, and also attract attention. They are designed to raise awareness and invoke memories of the experience when the concept of condition scoring is encountered in the future.

The flat sheep are easily transported and assembled. They are painted in traffic light colours to reinforce the messages that accompany them, as outlined in Table 1. Alternative messages can also be used depending on the intent of the display, e.g. susceptibility to worms, lamb growth rate between lambing and weaning or enterprise profitability.

Table 1. A summary of messages displayed on the folding sheep

Condition Score	Colour	Primary Message	Message
CS <2	Red	DO NOT JOIN!	20% will be dry and those that conceive twins will be in big trouble at lambing IF PREGNANT AT SCANNING **FIND EXTRA FEED!**
CS 2.5	Orange	OK at Joining	Conception volunteers a potential of 110% lambing **OK at Lambing** 10 % higher survival of twins compared to score 2
CS 3	Green	Best at Joining	120% conception <10% are dry, 30% conceive twins **Best at Lambing:** good lamb survival, good early lactation, good lamb growth rates, good buffer for poor weather at lambing
CS 4	Orange	Good at Joining	140% conception! < 5% are dry, > 40% twins **Careful at Lambing:** increased survival of twins, decreased survival of singles? good lamb growth rates, but stocking rate reduced?
TEST SHEEP	White	Feel me… you know it's the right thing to do.	Assess my condition score to go in the running for a set of "lamb" knives

At a field day, the sheep are arranged in a small mob, allowing people to move between them, comparing the messages and the feel of each model. They can quickly score each one, to get an idea how quickly the practice can be carried out on farm. Most importantly they attract attention of passers by and usually compel them to discuss condition score with the Lifetime Ewe Management representative. In the very least, most people passing by the display would feel at least one sheep.

Supporting the messages and further engagement

The colours were chosen to quickly illustrate the appropriateness of having sheep in a particular condition score. Red = Danger – do not join, Orange = OK, and Green = Best – these sheep are in optimum condition.

The white sheep is there to engage and challenge the viewer. The challenge is to identify the condition score of an unlabelled model, using the other sheep as a reference. This increases the likelihood of people feeling more than one sheep in the display.

The bright colours attract attention and also remain in the memory of a viewer for longer, although the content of the message may diminish. The residual awareness allows the message to be added to after the initial exposure by participation in other industry training and programs.

Conclusion

The fold up sheep have been to seven Western Australian industry field days in the past year, and were displayed at the national Grain and Graze workshop in Canberra in late 2008. They have been seen by many people, and were reported to be eye catching.

Our ability to influence farmers at field days is directly affected by our display materials. Real sheep are best to demonstrate the practice of condition scoring, but fake sheep with condition score models are almost as good and easier to use.

The key advantages of the fold up sheep are:

• simple with clear messages,
• highly visible,
• allow people to compare condition score between sheep,
• increase familiarity and awareness, and
• memorable.

It would be great if adoption of condition scoring as a widespread practice was as easy as displaying fold up sheep. However the learning process starts with awareness as its base. At least we have got that far.

References

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