

# Collecting wool samples

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The mid-side is the most accurate place to sample a sheep for fibre diameter measurement. The pin-bone is an easier site to sample, but is less reliable than the mid-side. The choice of which sample site you use will depend upon how you wish to use the information.

## Clip Preparation, Genetic Improvement or Both?

If you are using the measurements for clip preparation, you will need accurate assessments of what the likely fibre diameter is of each of the lines you will create. This is because price is extremely sensitive to micron.

If you are using the measurements for genetic improvement, the absolute values may not be as important, but you must use a site that accurately ranks the animals. The sheep with the lowest fibre diameter at the sample site must have the finest fleeces overall.

Some time before objective measurement became a reality, a lot of experiments examined the amount of variation within a fleece.

## Pin-Bone or Mid-side?

The mid-side has been commonly recommended as a site for sampling of the fleece. The bulk of fleece wool comes from the flank of the sheep and in sampling the mid-side, this represents a major portion of the fleece. It also tends to be the site most related to the average

fibre diameter over the whole fleece, so is best suited to testing for clip preparation.

The pin bone is an alternative site. It is often preferred because it is easier to identify, and it enables quicker collection of wool samples.

## Does the pin bone represent the whole fleece?

Studies completed in the 1950's indicate that samples taken from the pin-bone are 0.7 to 0.9µm stronger than those taken from the mid-side. However not many studies had been conducted using fine wool sheep (less than 21µm).

In November, last year, we collected mid-side and pin-bone samples from 300 of the hoggets from the World's Finest Ram Project. These sheep averaged 16.6µm at the mid-side and 17.4µm at the pin-bone. This is consistent to the earlier work on stronger sheep.

This micron difference could have a significant impact on clip preparation and ultimately the prices received for objectively classed lines of wool.

## Clip Preparation

At South Roxby and Roxby Park, most young sheep are tested every year. The wool from these sheep is prepared according to their measured fibre diameter at the mid-side sample. In general, we find that the lines of wool created test according to the average of

We know that if you select sheep using the mid side measurements, the sheep will both maintain this superiority over

the samples from the contributing fleeces. However, we often find the finer "specialty" bales test slightly higher than expected.

## Genetic Improvement

In our trial at South Roxby, with the 1999 drop World's Finest Ram Project hoggets, we have looked at the pin bone and the mid side samples to determine if they would rank the sheep in a similar manner. That is, even though the pin bone measurements had a higher fibre diameter, were the sheep with a lower fibre diameter at the pin bone consistently the sheep with the finest fleeces? Sadly, the answer was no.

If you selected on fibre diameter measured at the pin bone, you would achieve about 64% accuracy of selection, and could possibly even cull some of your finer sheep.

The pin bone measurements in our samples did not rank the sheep in the same way as the mid side measurements. Figure 1 shows the relationship between the pin bone samples and the misdeed samples

The table shows the selection differential you would achieve by selecting sheep based on mid-side samples, compared with pin bone samples, depending upon how many sheep you are selecting

## Further research

Of course the best way to measure the fibre diameter of a fleece is to use a method which samples the whole fleece, similar to the procedure used by AWTA when they core test lines of wool for sale. The Fleecescan offers the ability to achieve this in the shearing shed. We also collected mid side samples and pin bone samples and had the Fleecescan measurement for about 90 sheep. For this mob of sheep, each measurement site had an equal rank compared to each other. That is, the finest on the Fleecescan were also the finest on the pin bone, and the finest on the mid side. Unlike the previous trial, in this trial, it did not matter where the samples were collected. Until we know the reasons why for some flocks it will work for

Table 1. A comparison of the fibre diameter (FD) of hoggets selected using samples from either the mid-side or the pin-bone

Proportion of hoggets selected (%)	Average mid-side FD (µ) of sheep selected using samples from:		Selection differential <sup>a</sup> (µ) using samples from:		Selection efficiency of pin-bone sample <sup>b</sup> (%)
	Mid-side	Pin-bone	Mid-side	Pin-bone	
10	14.8	15.6	-1.80	-1.01	56
30	15.4	15.9	-1.21	-0.75	62
50	15.8	16.0	-0.84	-0.57	67
70	16.1	16.2	-0.53	-0.36	68
90	16.4	16.4	-0.22	-0.16	72
100	16.6	16.6	0	0	-

<sup>a</sup> the difference between the FD of the whole mob (16.6µ) and the mobs selected using either the mid-side or pin-bone sample

<sup>b</sup> the reduced FD of mobs selected using pin-bone samples compared to those selected using mid-side samples

their lifetime and pass this superiority onto their progeny.

others it doesn't, we cannot recommend sampling at the pin bone.

### Effect of Micron Blowout

Next year, we will test these sheep again, as part of the progeny trial, and we will then be in a position to examine whether the difference between the pin-bone and the mid-side sample gives an indication of whether or not a sheep is prone to "micron blowout".

### Conclusion

At this stage, you should use mid-side samples for both clip preparation and genetic improvement. The mid-side is more representative of the majority of the fleece, and therefore, provides a more

reliable prediction of the average fibre diameter of the whole fleece. The relationship between mid-side samples and pin-bone samples is not consistently high enough to achieve high selection differentials for your genetic improvement program.

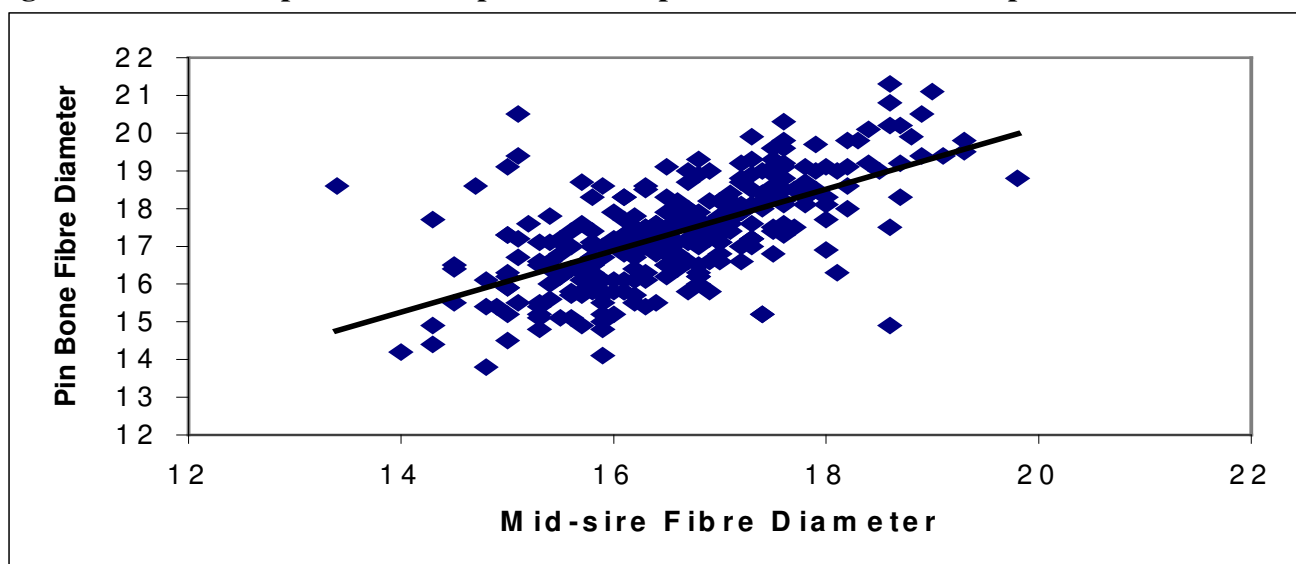
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#### Key Points:

- *In fine wool sheep a mid-side sample provides the best indication of the average fibre diameter of the fleece.*
- *Mid-side samples are more accurate when used for objective clip preparation than pin-bone samples.*
- *Pin-bone samples are not reliable at ranking sheep for genetic improvement programs.*

**Figure 1: Relationship between the pin bone samples and the mid side samples**



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