TECHNICAL REPORT

by **Groupe Cérès and Nutrition Athéna**

MEASURING THE BACK FAT OF THE SOW

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BACK FAT IS A GREAT INDICATOR OF SOWS' BODY RESERVE

If the sow has little back fat at farrowing, she will need to draw on her tissues (protein and fat reserves) to maintain her milk production if the feed intake is not enough to fulfill her needs. On the other hand, it is well documented that if the sow is too fat (>20mm), she will have a lower daily intake during lactation, especially in early lactation. This will result in excessive back fat loss.

If a sow mobilizes more than 12% of her protein reserves during lactation, litter growth will be reduced as well as the future reproductive performances. In terms of back fat, a fat loss greater than 2 mm during lactation will affect performance in the subsequent production cycle. A feeding program is needed to ensure that all sows are neither too thin (<12mm) nor too fat (>18 mm) at farrowing.

PERFORMANCE AND LONGEVITY

To optimize sows' performance and longevity, it is important to adapt feed intake in order to control body reserves and avoid excessive fattening or emaciation which are detrimental to good reproduction performance. To avoid over-fattening, we recommend feeding gilts with 5.1 lbs, P1+ with 5.6 lbs during days 0-100 of gestation. These quantities are sufficient to allow the sow to put on 2 mm of fat during her gestation. For a lean sow (<12mm), we recommend adding an extra pound of feed during the first 40 days of gestation to the amounts previously listed. It is not recommended to put excessive fat sows on a diet, they will simply be fed at their recommended level according to their parity. All sows will be fed an additional 2.2 lbs during days 100-115 of gestation to meet the needs of fetal development which would otherwise be drawn from the sow's reserves.

GOOD READING

To get a good back fat reading, measure at the height of the last rib of the sow, 6.5 cm from the spine. Make sure you have all 3 layers of fat to get an accurate measurement. Back fat can be measured with an ultrasound device like the one used for pregnancy tests. However, it is necessary to have a linear probe that is different from the probe used for pregnancy tests. This device gives an image of the fat layers and if the user is well trained, can give an accurate measurement. This type of device is quite expensive (between 3500 and 5000$).

A Renco type device can also be used. This type of device gives a direct measurement and is easier to use. However, it has been shown that the values obtained are 9% lower than the absolute values. A correction formula calculated from a correlation between the UScan and Renco is therefore proposed when the Renco is used: y=0,9101x + 1,8796. The purchase of a Renco costs approximately 700-800$.

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Figure 1 : Table showing the relationship between back fat measured with a UScan device (Vetko) compare to the Renco

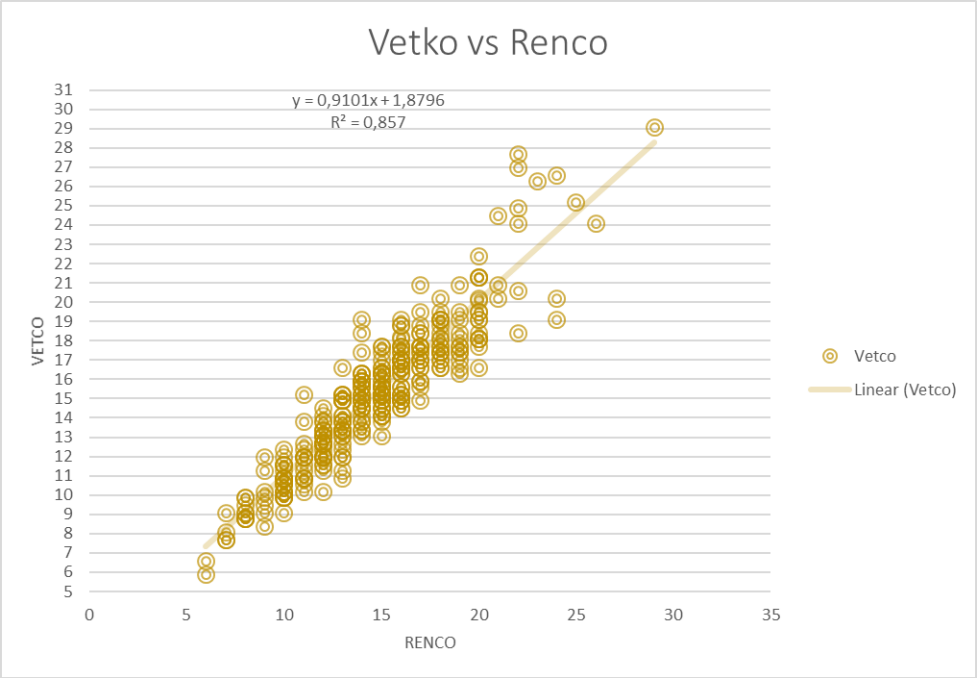


Table 1 : Equivalence between Renco and UScan readings following the correlation between these two devices

Renco Back Fat (mm)	UScan Back Fat (mm)	%
10	11.8	18 %
11	12.5	14 %
12	13.3	11 %
13	14.1	8 %
14	14.9	7 %
15	15.8	6 %
16	16.7	5 %
17	17.7	4 %
18	18.7	4 %
19	19.7	4 %
20	20.8	4 %
21	21.9	4 %
22	23.0	5 %
23	24.2	5 %
24	25.4	6 %
25	26.6	7 %
26	27.9	7 %
27	29.2	8 %
28	30.6	9 %
29	32.0	10 %
30	33.4	11 %
31	34.9	13 %
32	36.4	14 %
33	37.9	15 %
34	39.5	16 %
35	41.1	17 %

TARGETED VALUES (ULTRA SOUND MEASUREMENTS)

AT THE MATING OF GILTS: 14-17 MM
AT FARROWING: 16-18 MM
AT WEANING: 13-16MM

It is important to understand that the expected levels of back fat thickness are not the herd's average values but values that should be achieved by each sow.

The most important thing to do to achieve these goals is to maximise consumption during lactation, feeding during gestation serving only to correct the reserve status.

MEASUREMENTS

When starting to use back fat measurement on a herd, it is a good idea to take measurements on a batch of sows at farrowing and at weaning in order to understand the herd's initial situation.

Thereafter, measurements can be taken only at weaning and occasionally, readings can be taken at farrowing to validate the feeding program in place.

Figure 2 : Usual site for back fat measurement.

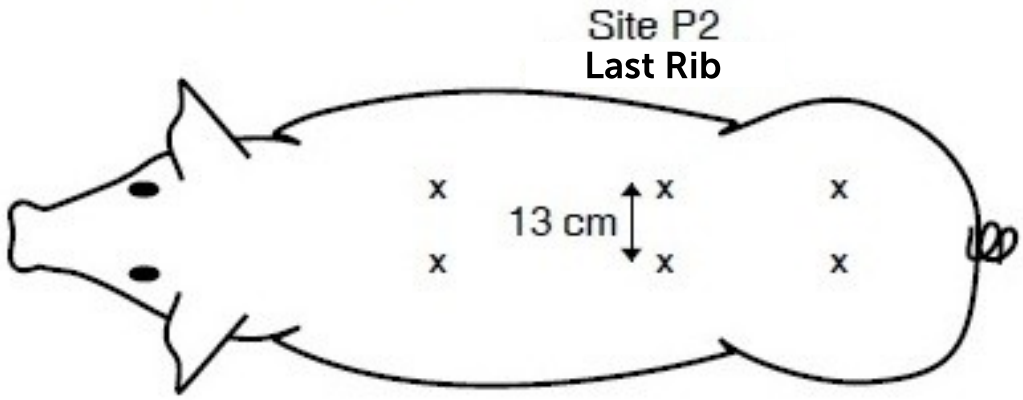
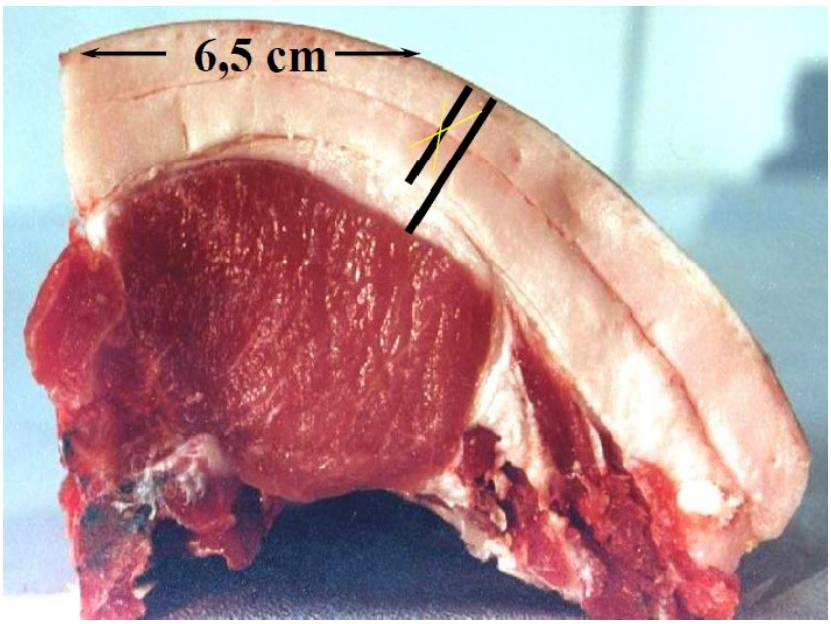


Figure 3 : Reading of the sow's back fat measurement

Figure 4 : Always include the 3 layers of fat (have all 3 lines on the device)



VISUAL EVALUATION

Finally, although it is not the most accurate and repeatable technique, it is possible to make a subjective assessment of the sow's flesh condition by comparing it to figure 5. The objective is to locate it on a scale from 1 to 5. The ideal flesh condition is at 3. A sow at 1 or 2 at weaning would be considered as lean and will be given an extra pound of feed per day during days 0-40.

Figure 5 : Flesh condition chart (visual)