

ULTRASONIC MEASUREMENT OF BACKFAT ON PIG CARCASSES

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Backfat depth on pig carcasses is currently determined using the Introscope. Measurement involves the insertion of a probe into the carcass and visual detection of the fat/muscle interface. For reasons of hygiene and carcass appearance, non-destructive methods of measuring carcass backfat are desirable as are methods which reduce operator error by more objective (eg. electronic) measurement of backfat depth. Ultrasonic backfat testers for use on live pigs meet these criteria. Canadian evaluations of ultrasonic measurement of carcass backfat have been equivocal (Fortin et al. 1981; Jones et al. 1982).

The Australian-manufactured "Sonalyser" ultrasonic backfat tester was compared with the Introscope in the measurement of carcass backfat.

Backfat was measured on 200 carcasses at each of two sites; the P2 position and a tattooed location at which ultrasonic backfat had previously been recorded on the live pig. Readings were taken while the warm, split carcasses were hanging on a "dead-rail" at the end of the dressing chain. Ultrasonic readings were taken by one operator and Introscope depths by another. The carcasses were still wet following the final wash on the dressing chain but additional water was used to ensure adequate contact between the skin and the probe of the Sonalyser. Sonalyser readings (independent variables) were regressed against Introscope readings (dependent variables) for each site.

The regression equations and statistics were:

		P	r ²	r.s.d.	\bar{y} (s.d.)
P2 site	$Y = 2.82 + 0.803X$	<0.005	0.69	1.55	15.35 (2.80)
Tattoo site	$Y = -2.89 + 1.47X - 0.02X^2$	<0.005	0.72	1.55	15.35 (2.91)

Since the Sonalyser and the Introscope measure the same backfat thickness, the optimum relationship between them should be a straight line with a slope of unity and an intercept of zero. This did not occur at either site. The low r^2 and high r.s.d. values also indicate the Sonalyser was not accurately measuring Introscope backfat depth. A similar assessment of ultrasonic carcass backfat measurement was made by Jones et al. (1982) although the results of Fortin et al. (1981) were more promising.

We observed three other factors which limit the use of the Sonalyser in an abattoir. Most importantly, the carcass must be still: pilot trials showed it was difficult to obtain a stable reading while the carcasses were moving on the chain. They must also be warm and the skin wet. As the carcasses cooled it became difficult to obtain a display, presumably because the fat began to solidify. Once the carcass dried a grease film formed on the skin surface. It was then difficult to re-wet the test sites and obtain satisfactory probe contact.

The Sonalyser cannot, at its present level of development, replace the Introscope to measure carcass backfat depth.

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JONES, S.D.M., ALLEN, O.B. and HAWORTH, C.R. (1982). Can. J. Anim. Sci. 62:731.

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