

THE USE OF INDEPENDENT CULLING IN THE SELECTION OF PIGS FOR GROWTH RATE AND BACKFAT THICKNESS

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The selection of breeding stock within the Australian pig industry is commonly based on the growth rate and **backfat** thickness of individual pigs. **Backfat** measurements can be taken on the live pig by using either an ultrasonic probe or a metal probe. The ultrasonic probe offers the easiest method of measuring fat thickness but these units are expensive and the cost cannot be justified in small piggeries. The metal probe offers a cheaper-but more tedious alternative.

When a metal probe is used, then the probing of large numbers of animals is not practical and a method of selection using independent culling is necessary. This method involves preliminary selection being based on growth measurements. Final selection is then based on fat measurements taken on the fastest growing pigs. This paper is concerned with estimating the proportion of a population which must be selected initially on growth measurements so that the correct emphasis is given to both traits.

The graphical method, as described by Young and Weilor (1961), and the coefficients of the selection index presently recommended for use in Victorian piggeries were used, as suggested by Young (1964), to determine the optimum culling levels when different proportions of a population are retained for breeding (Table 1). The selection index referred to gives slightly more emphasis to growth rate than to **backfat** thickness i.e. Index = 67 (Growth rate, kg/day) - (**backfat** thickness at P₂ position, mms.)

Table 1 shows that the percentage of a population that should be graded on **backfat** thickness 'decreases as the percentage of the group finally selected decreases.

TABLE 1: The percentage of a population to be graded on **backfat** thickness.

	Percentage of population selected			
	2	5	10	20
Percent to be graded on fat thickness	9	16	25	32

With normal selection practices, less than 25% of the population would need to be graded on fat thickness.

YOUNG, S.S.Y. (1964). Heredity 19: 131.

YOUNG, S.S.Y. and WEILOR, H. (1961) J. Genet. 57: 329.

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