

## Breeds of pigs—Landrace

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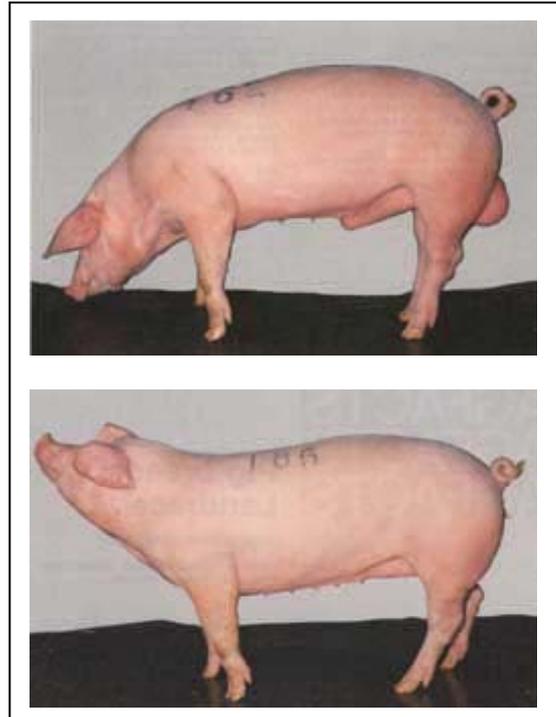
*This Primefact provides a brief history of the Landrace breed and its use in the Australian pork industry.*

### Origin and history

The Landrace breed was developed in Denmark by crossing the native pig with the Large White. This cross was then improved on during years of testing and breeding under strict government control. The Danes refused to export live pigs until World War II, when the best specimens of the breed were exported to Sweden. The progeny from these pigs eventually reached England and Ireland.

The English first imported Landrace from Denmark in 1949. In 1953, further imports of registered breeding stock were made and the breed society was formed. This society amalgamated with the National Pig Breeders' Association in 1978. The Danes had concentrated on producing a pig that suited the British bacon trade, which preferred the 'Wiltshire' type side of bacon. The Landrace was also bred to be adaptable to the intensive-housing system of production.

In 1958, Landrace were imported into Australia from Northern Ireland. A total of fifteen mated sows and five boars arrived before imports of live pigs were stopped. These Landrace pigs formed the foundation stock of the Australian Landrace. Treacy (1976) states that 144 registered Landrace pigs were imported into Australia from 1959 until 1973. Most of these pigs came from New Zealand (80%) and the remainder were imported from the United Kingdom.



At the Melbourne Royal Show in 1959 a Landrace sow was sold for 3,750 guineas (\$7,875). This price remains a record for the amount paid for any Australian breed of pig. Since 1973 there have been many introductions of Landrace from New Zealand, Britain and Canada, and the breed is now the second most popular in Australia, the most popular being the Large White.

### Breed characteristics

Landrace have white skin and are free from black hair. They are a lop-eared pig with a long middle, light forequarters, and excellent ham development. The major faults with the original Landrace were leg weakness, splay legs and nervous disorders such as porcine stress syndrome (PSS). PSS still occurs in some strains.

## Uses and performance

With the advent of the intensive housing system in Australia the Landrace became very popular in cross-breeding programs with the Large White breed. First and subsequent crosses were ideally suited to intensive pig production. Today, the majority of crossbreds contain Landrace and Large White blood.

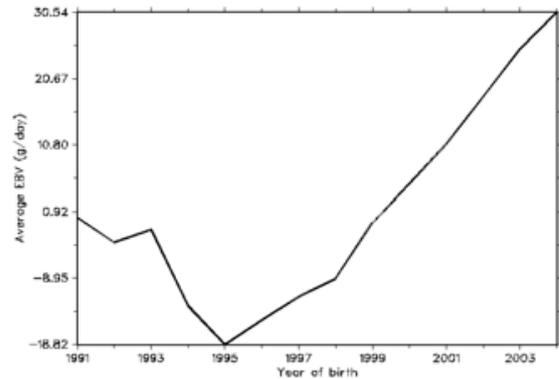
The Landrace breed improved carcass quality in the early years of its introduction into Australia, mainly because of the large size of their eye muscle. Carcass competitions in the late 1960s were regularly won by Landrace pigs. In addition, the Landrace was noted for its early, rapid growth, and its weight at weaning was higher than that of other breeds. Usually it was not as prolific a breeder as the Large White and tended to be slightly fatter.

In a study by Bunter and Bennett (2004, AGBU Pig Genetics Workshop Notes), progeny from a number of breeds and terminal sire lines were raised under the same conditions. The progeny were compared for growth, backfat, meat and eating quality traits. There were differences between breeds for some traits; however, there were also large differences between progeny groups of sires within a breed. This demonstrates that breeders and producers must consider between-breed differences and differences between animals within a breed.

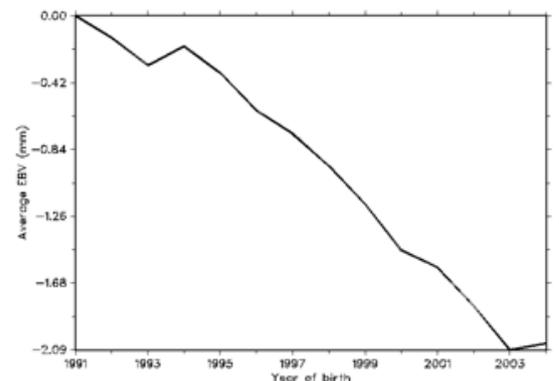
## Genetic improvement

Modern breeders use computer programs like PIGBLUP for genetic improvement of pork production. Selection decisions are based on estimated breeding values (EBVs), which are an estimate of the genetic merit of pigs. EBVs are derived from pedigree and performance data available from herd recording systems for a number of performance and reproductive traits. The genetic gain that has been achieved in a population of pigs is demonstrated through genetic trends, which show the average EBV of all animals born in the same year.

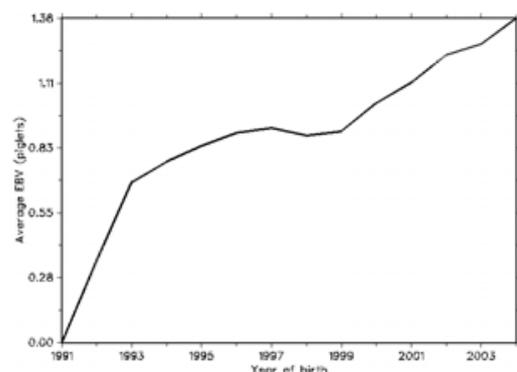
The Landrace breed is part of the National Pig Improvement Program. The NPIP provides across-herd EBVs, and genetic trends for Landrace are presented in the following graphs for average daily gain, backfat depth and litter size. These genetic trends are the average genetic trend of all participating herds. Genetic trends of individual seedstock providers may differ from these average genetic trends due to different selection emphasis placed on each trait by individual breeders.



**Genetic trend for Landrace: Average Daily Gain** (Source: NPIP 8.12.04). A genetic improvement of approximately 50 grams per day has been achieved from 1995 until 2004. A number of breeders were establishing their Landrace breed in the early 1990s, which contributed to the downward trend from 1991 until 1995.



**Genetic trend for Landrace: Ultrasonic Backfat Depth** (Source: NPIP 8.12.04). Backfat has been reduced continuously and a total genetic gain of -2 mm has been achieved. Most breeders regard this breed as a maternal breed and place less emphasis on backfat.



**Genetic trend for Landrace: Number of Piglets Born Alive** (Source: NPIP 8.12.04). When seedstock suppliers started using BLUP technology in the early 1990s the initial focus was mainly on growth rate and backfat, even in maternal lines. During the last 5 years, litter size has been improved genetically by 0.10 piglets/year on average. Different breeders have placed different emphasis on this trait and genetic trends differ between individual seedstock suppliers.

## References

Bunter, Kim and Bennett, Colin (2004), 'Genotype comparisons for meat and eating quality traits', *AGBU Pig Genetics Workshop Notes*, pp. 59–69.

Treacy, DA (1976), 'A genetic analysis of the pedigree Landrace pig breed in Australia', *Australian Journal of Experimental Agriculture and Animal Husbandry*, Vol. 16, pp.76–81.

## Further information

Suggested sources of information include:

- NSW Department of Primary Industries: [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)
- Pig genetics at AGBU: <http://agbu.une.edu.au/pigs/pigblup>
- National Pig Improvement Program: <http://npip.une.edu.au>
- The Australian Pig Breeders Association: [www.ksrcl.com.au/index.html](http://www.ksrcl.com.au/index.html)

- [Breeds of pigs—Large White](#) (NSW DPI Primefact 62)
- [Breeds of pigs—Duroc](#) (NSW DPI Primefact 64)

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (November 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.