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## Breeds of pigs—Duroc

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

### Origin and history

The exact origin of the Duroc breed is unknown. A number of red pig strains developed around 1800 in the United States in areas such as New York and New Jersey. The modern Duroc originated from crosses of the Jersey Red of New Jersey and the Duroc of New York. The Duros were smaller and more compact than the Jersey Reds, which were long, rangy and reached a very large size at maturity.

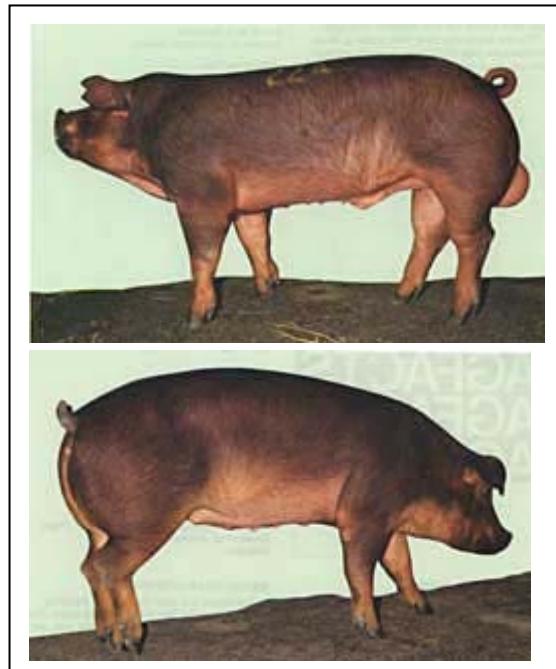
The Duroc was first imported into Australia in 1922 and by 1936 had become quite popular. However, the breed gradually lost favour and became extinct in the early forties. In 1981 Duros were reintroduced into Australia. The new bloodlines came from New Zealand and Canada.

### Breed characteristics

The Duroc is a large-framed, late-maturing type, excellent for heavy-carcase production. The forequarters, particularly the head and neck, are light and it has small lop ears. The skin is a solid reddish colour, varying from gold to a deep, brick red. They have a medium length and slight dish of the face.

### Uses and performance

The Duroc was imported into Australia to provide a third breed. It is used in cross-breeding programs as a terminal sire when crossed with



Large White/Landrace cross sows. This cross is very suitable for the bacon trade.

The Duroc or Duroc cross does not make a good maternal sire. Litter size is lower than that of other breeds. However, Duroc crosses (with up to 60% Duroc) crossed with white breeds have been shown to perform quite well as breeding females. Duros, especially male Duros, have been found to be aggressive. Some lines have shown hip and shoulder weakness.

Pig performance depends on their genetic merit and the environment they are raised in. Therefore, only when pigs from different breeds are raised in the same environment is their performance a reflection of genetic differences between breeds.

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 Duroc breed is part of the National Pig Improvement Program. The NPIP provides across-herd EBVs, and genetic trends for Duroc are presented in the following graphs for average daily gain and backfat depth. 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.

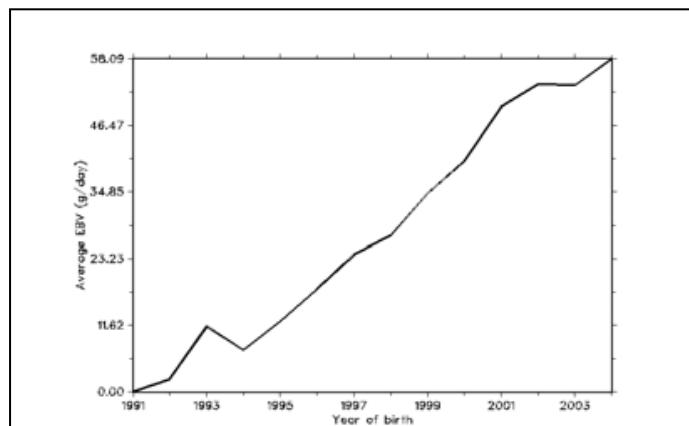
## References

- 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.

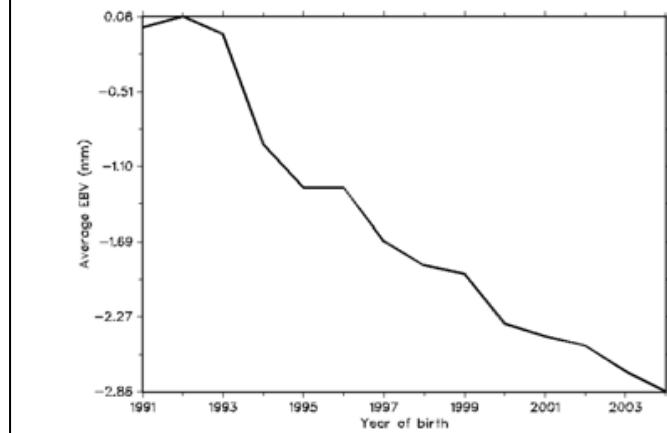
## Further information

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- Landrace\*](#) (NSW DPI Primefact 63)



**Genetic trend for Duroc: Average Daily Gain** (Source: NPIP 14.12.04). Pigs born in 1991 had an average EBV of 0 grams per day in comparison to an average EBV of 58 grams per day for pigs born in 2004. This implies an average genetic gain of about 4.5 g/d each year.



**Genetic trend for Duroc: Ultrasonic Backfat Depth** (Source: NPIP 14.12.04). Backfat has been reduced through genetic improvement by –0.22 mm each year. The cumulative genetic gain from 1991 until 2004 is substantial with –2.85 mm and modern genotypes available today differ substantially from unimproved genotypes that have not been selected with the use of BLUP technologies.

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