

Breeds of pigs—Large White

Graeme Taylor and Greg Roesse

Livestock Officers Pigs

Intensive Livestock Development, Tamworth

Susanne Hermesch

Pig Genetics Coordinator

Animal Genetics and Breeding Unit, UNE,
Armidale.

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

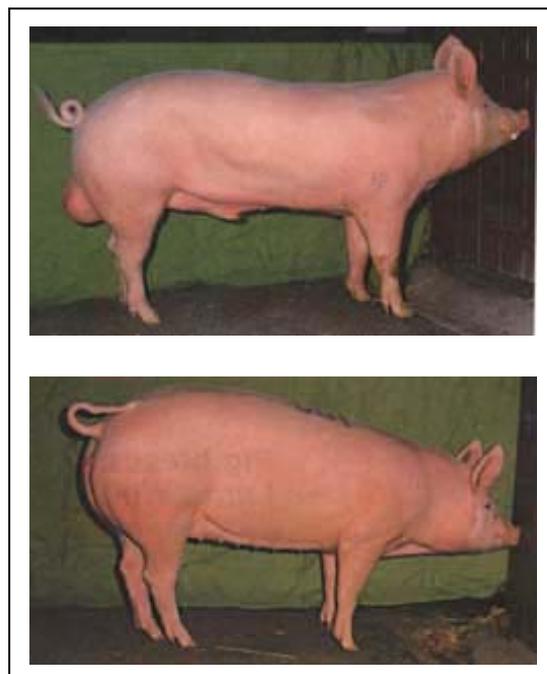
Origin and history

The Large White breed of pig was developed in England in the late 1700s. There were nearly 4000 Large Whites registered in England in 1981, ranking them as the top breed in that country. It is also the leading breed of the world, as Yorkshires in the USA and Canada are direct descendants of the Large White. The Large White has become well established as a major breed in virtually all pig producing countries in the world.

The breed began when a small, fleshy type of pig from Canton in China was crossed with white pigs from Yorkshire and adjacent counties to produce the Small White, Middle White and Large White breeds.

Large Whites came into prominence in the 19th century. The pioneer of the breed, Joseph Tuley, a weaver of Keighly in Yorkshire, exhibited a pair of pigs at the Windsor Royal Show in 1851. The Large White was one of the original breeds registered when the herd book was established in 1884. The breed was first introduced into Australia in the last quarter of the 19th century.

McPhee (1965) mentioned that the first pedigree Large Whites were bred at Dookie Agricultural College in Victoria. By 1921 the



breed had spread to Sydney and by 1931 had been expanded to southern and western Victoria, southern Queensland and Adelaide. Ten years later, the breed had become established on the southern coast of New South Wales, in northern Queensland, in Tasmania and in Western Australia. The number of registrations increased further in the 1950s and 1960s, and the Large White is now the most popular breed in Australia with most intensively housed herds containing a large proportion of Large White blood.

Breed characteristics

Large Whites have white skin and are free from black hair. They are a large-framed, late-maturing type and have a long middle and light shoulders. They are longer in the leg than are other breeds and tend to have poor ham development and long deep sides. The head is moderately long with the face slightly dished, and the ears are pricked.

Uses and performance

The Large White is a rugged and hardy breed that can withstand a wide range of climatic conditions. They are commonly used in crossbreeding or hybrid programs, with the most popular cross being Large White and Landrace. This cross is often used as the maternal line in commercial herds. A third breed such as a Duroc or Hampshire is often used as a terminal sire. Breeding programs result in pigs produced for market that meets consumer's requirements of low amounts of fat and high levels of lean meat content.

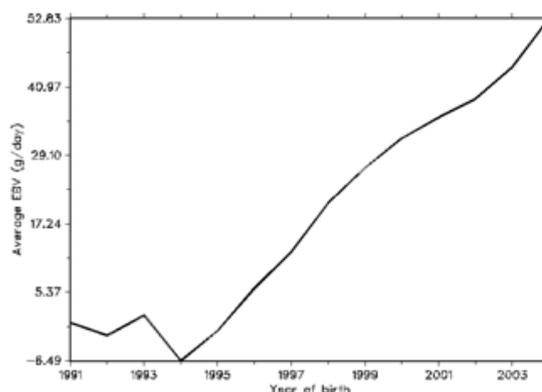
Large White sows have been noted for their large litter size, their heavy milk production and for having excellent maternal instincts. Good lines also have sound feet and legs, allowing long productive lives.

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.

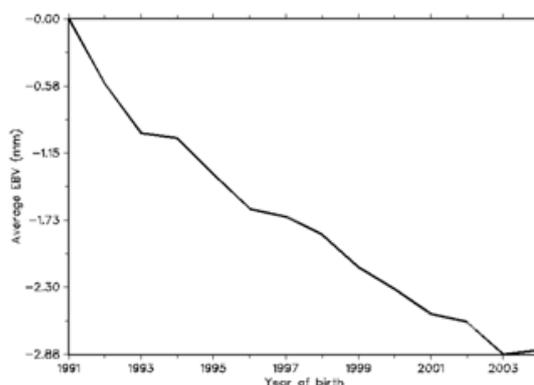
Genetic improvement

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.

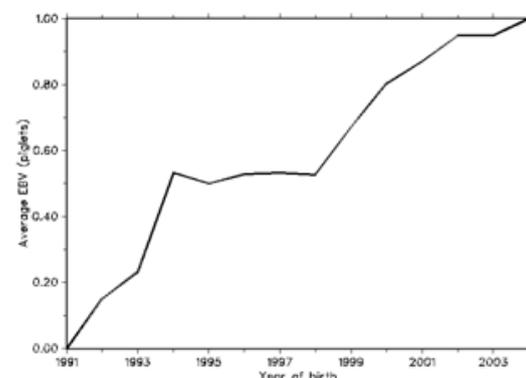
The Large White breed is part of the National Pig Improvement Program (NPIP). The NPIP provides across-herd EBVs, and genetic trends for Large White are presented in the following graphs for average daily gain, backfat depth and litter size. These genetic trends are the average genetic trend of all participating 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 Large White: Average Daily Gain (Source: NPIP 24.11.04). Breeders established selection procedures based on PIGBLUP in the early 1990s and an average annual genetic gain of approximately 6 grams per day has been achieved from 1994 until 2004. Genetic gains are cumulative and the genetic merit of pigs is nearly 60 g/d higher in 2004 in comparison to 1993.



Genetic trend for Large White: Ultrasonic Backfat Depth (Source: NPIP 24.11.04). A genetic improvement of -2.88 mm has been achieved in Large White from 1991 until 2003. Most seedstock suppliers have now reached a backfat level that is sufficient for today's market and have taken selection pressure off backfat. This is apparent in the flatter trend for backfat from 2003 to 2004.



Genetic trend for Large White: Number of Piglets Born Alive (Source: NPIP 24.11.04). The genetic trend for litter size shows that breeders have placed emphasis on this trait since 1999 and a cumulative genetic trend of approximately 0.5 piglets has been achieved from 1999 until 2004.

References

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

McPhee, CP (1965), 'Growth of the Pedigree Large White pig population in Australia'. *Queensland Journal of Agricultural and Animal Sciences*, Vol. 22, pp. 137–47.

Further information

Suggested sources of information include:

- NSW Department of Primary Industries:
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

- [Breeds of pigs—Landrace](#) (NSW DPI Primefact 63)
- [Breeds of pigs—Duroc](#) (NSW DPI Primefact 64)

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ISSN 1832-6668

JOB NUMBER 6147

Replaces Agfact A4.3.7

Updates of this Primefact are available at
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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.