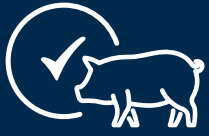




Australian sorghum

for pigs and
layer poultry

Australian sorghum is a proven, reliable, high-quality feed grain. Australian feed sorghum is well-suited to pigs and poultry.



Key benefits of Australian sorghum

- ✓ **A proven, reliable starch source:** The starch content of Australian sorghum is intermediate between corn and wheat/barley.
- ✓ **High protein content:** Australian sorghum has a higher protein content than corn.
- ✓ **Low risk:** Australian grains have a low risk of mycotoxin contamination due to dry harvest and high-quality storage.

Australian sorghum is a proven, reliable grain for animal feed. It is nutritionally similar to corn but without the yellow pigments. Due to its inherent drought tolerance and short growing season, interest in sorghum is increasing, with red sorghum the main type grown in Australia for animal feed.





Production and export

Most of the world's sorghum grain is fed to animals, including poultry, and it is also used for food (Africa) and alcohol (ethanol, beer in Africa and baijiu in China).

Australian sorghum production averages around **1–1.5** million metric tonnes. Australian sorghum is mostly used for animal feed within Australia.

Australian sorghum is also exported, with most demand coming from China. Australian sorghum in China is mostly used for animal feed, and is also used in the baijiu distilling industry.

Other export markets include Philippines, New Zealand, Taiwan and Japan.



Storage and processing

From the grower to the exporter, the **Australian sorghum industry is committed to the highest standard** in product performance to meet the requirements of international customers.

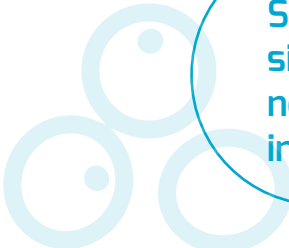
Australian sorghum has **low moisture content**, with **low mycotoxin contamination** and **long storage viability**.



Nutrition

Starch is the main component of, and contributor to, metabolisable energy (ME) in all grain types. Sorghum starch content is typically slightly lower than corn but higher than wheat or barley, commonly around **62%** as fed.

The nutrient composition and energy value of Australian sorghum is generally less variable than that of other grains. Starch digestibility is lower for sorghum than corn: e.g. it has **ideal starch digestibility of 88%** compared to 94% for corn. Phenols (in the pigmented seed coat), kafirin (the protein matrix encapsulating the starch granules), and phytate may all contribute to this lower starch digestibility.



Sorghum is classified as a non-viscous grain similar to corn due to its low content of soluble non-starch polysaccharides (NSP). It is also lower in insoluble NSP than other major grains.

The ME value of Australian sorghum is commonly of the order of 3310 to 3390 Kcals/kg as fed (12% moisture basis), similar to corn.

At typical crude protein levels sorghum contains similar standardised **ileal digestible essential amino acid** (SID-EAA) content to corn, but less than wheat or barley.





Opportunities to use sorghum in pig and layer poultry diets

When feed prices are high it is important to be confident to diversify feed options and utilise the best economical solutions.

Sorghum can be used to partially replace other grains.



Table 1: Using Australian sorghum in pig diets

	Maximum inclusion rates (pigs)
Creep	0%
Pre-starter	5%
Starter	7%
Grower	15%
Finisher	25%
Gestation	25%
Lactation	15%

- ✓ Sorghum contains less unsaturated fatty acids than corn and therefore can improve carcass fat quality.
- ✓ Optimum grind size for sorghum in pig diets is 600 microns.



Table 2: Using Australian sorghum in layer diets

	100% Corn	50% Corn 50% Sorghum	100% Sorghum	P-value
Production efficiency	86.7	86.6	87.9	n.s.
Feed intake (g/day)	116.5a	115.3a	112.6b	<0.05
FCF/egg mass (g)	2.377	2.396	2.341	n.s.
Egg weight (g)	56.6a	55.5ab	54.9ab	<0.05
Yolk colour score	++++	++	+	

Source: Reddy et al., 2005

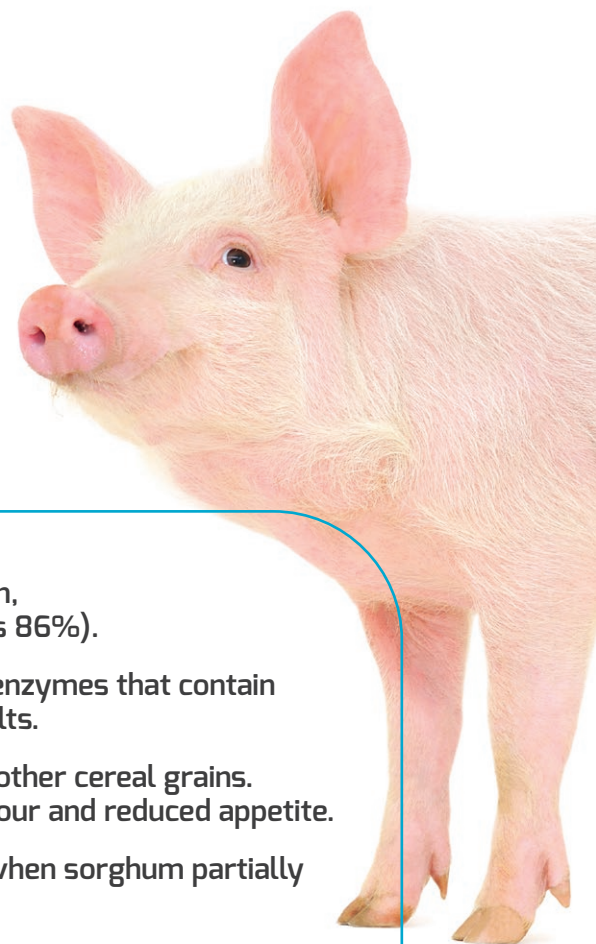
Poultry can perform as well on sorghum as they do on wheat or corn, if provided in balanced diets.

You can confidently replace 50% of the grain component in the diet with sorghum.

- ✓ Up to 50% of the grain component in the diet can be sorghum without compromising egg weight and feed intake.
- ✓ The cost of additional pigments needs to be considered in the economical evaluation of sorghum.



Things to consider



- ✓ Sorghum is a good source of lysine and tryptophan, but protein digestibility is lower than corn (79% vs 86%).
- ✓ Sorghum requires the additional cost of complex enzymes that contain carbohydrase, phytase and protease for best results.
- ✓ Sorghum can be used in moderation compared to other cereal grains. Higher levels can result in negative feeding behaviour and reduced appetite.
- ✓ Mature pigs (>15kg liveweight) can perform well when sorghum partially replaces other grains.
- ✓ Poultry are more tolerant of sorghum and can use higher levels, and cope well with up to 50% whole grains.
- ✓ Poultry and pigs have requirements for nutrients, not ingredients.
- ✓ The main anti-nutritional factor in sorghum is called kafirin. It is a protein, which means it is essential to formulate diets to digestible amino acids when utilising sorghum.
- ✓ Sorghum has a favourable fibre profile and can improve faecal consistency and reduce the risk of diarrhoea or wet litter compared to corn.



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