



Australian wheat

for broiler poultry

Australian wheat is a proven, high-quality feed grain. It has been used very successfully over a long period of time.



Key benefits of Australian wheat for broiler poultry

- ✓ Australian wheat is suitable for all classes of poultry.
- ✓ It is the dominant grain in most commercial livestock feeds and particularly in broiler diets.
- ✓ The mycotoxin risk is very low due to grain being harvested dry (**8-12% moisture**) and stored professionally.
- ✓ Energy and protein content can vary but is easily monitored via tools such as AusScan and buffered by the use of non-starch polysaccharides (NSP) enzymes.
- ✓ Wheat starch gelatinises readily and assists with the pelleting process.
- ✓ Wheat starch and protein are highly digestible.



Production and export

Australian wheat is produced in one of the cleanest environments in the world.

Almost **22 million tonnes** of wheat is produced in Australia each year which accounts for **3%** of world wheat production and almost **10%** of global exports.

Almost **65–75%** of Australia's total wheat production is exported each year with Western Australia the largest exporting state.



Storage and processing

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

Australian wheat is **relatively easy to mill** and has good pelleting characteristics. It has a feed pellet quality factor (Borregaard LignoTech) score of 8, compared to corn at 5 and sorghum at 4.

The mycotoxin risk of Australian wheat is very low due to the grain being harvested dry (**8-12% moisture**) and stored in high-quality (aerated) facilities.



Nutrition

Australian wheat is suitable for all livestock but is particularly appropriate for broiler diets.



Wheat is the dominant grain in Australian broiler diets and supports world class performance.

Wheat is slightly lower in starch and oil than corn but higher in protein. Table 1 compares the typical composition and energy values of wheat relative to corn, barley and sorghum.

At typical protein levels wheat delivers more essential amino acids than corn. Many book values for the energy value of grains are derived from in-vivo assays in the absence of enzymes. Enzymes are used routinely with wheat in commercial feed manufacture and result in improved ME values and more consistent ME values (taking away the influence of non-starch polysaccharides).

Wheat is classified as a viscous grain due to its content of soluble non-starch polysaccharides (NSP), mainly arabinoxylans. Table 3 compares the fibre profile of wheat relative to corn, barley and sorghum. The anti-nutritional effects of the soluble NSP are largely eliminated by the use of xylanase and B-glucanase enzymes.





Opportunities to use wheat in broiler diets

Australian wheat is suitable for all poultry diets and **can be used with no limits** as the sole or dominant grain.



Things to consider

- ✓ Wheat doesn't contain the yellow pigment present in corn, therefore if there is need for these pigments, they may need to be derived from other sources.
- ✓ Phytase enzymes addition is recommended to deal with the anti-nutritional aspects of phytate (common in all grains).

Table 1: Typical fibre content (% of grain, DM) of sorghum, corn, barley and wheat¹

		Arabino-xylan	11-Glucan	Cellulose	Other NSP ²	Lignin	TOTAL FIBRE
Sorghum	Soluble	0.10	0.10				0.20
	Insoluble	2.00	0.10	2.20	0.25	1.10	5.65
	Total	2.10	0.20	2.20	0.25	1.10	5.85
Corn	Soluble	0.10					0.10
	Insoluble	5.10		2.00	0.80	1.10	9.00
	Total	5.20		2.00	0.80	1.10	9.10
Barley	Soluble	0.80	3.60		0.10		4.50
	Insoluble	7.10	0.70	3.90	0.50	3.20	15.40
	Total	7.90	4.30	3.90	0.60	3.20	19.90
Wheat	Soluble	1.80	0.40		0.20		2.40
	Insoluble	6.30	0.40	2.00	0.30	1.80	10.80
	Total	8.10	0.80	2.00	0.50	1.80	13.20

¹ from Choct (2006) and Bach Knudsen (2014)

² Mannans + Galactans + Uronic Acid



Table 2: Comparative typical proximate analyses of grains

Specification		Corn	Wheat	Barley	Sorghum
Moisture (%)		13	12	12	13
Protein (%)		8	11	11	9.5
Fat (%)		4	2.3	2.6	3.5
Ash (%)		1.15	1.7	2.2	2
Fibre	Crude (%)	2	2	4.8	2.3
	NDF ¹ (%)	9	8.5	16	8
	ADF ² (%)	2.2	2.5	5.5	2.5
Starch + sugar		64.6	63	53.9	63
Broiler ME MJ/kg (Kcal/kg)		13.45 (3215)	12.56 (3000)	11.2 (2677)	13.21 (3157)
Layer ME MJ/kg (Kcal/kg)		13.75 (3285)	13.00 (3105)	11.8 (2820)	13.50 (3227)
Australian broiler values (Kcal/kg)		3350	3200*	2900*	3300

Source: Premier Atlas (2008)

Note: Typical values only; composition can vary widely with different agronomic conditions

* With Non-Starch Polysaccharides (NSP) enzyme

¹ NDF = Neutral detergent fibre ² ADF = Acid detergent fibre

Table 3: Standardised ideal digestible (SID): Essential Amino Acid composition of the major grains at typical protein contents

	Corn	Wheat	Barley	Sorghum
Protein (%)	7.8	11.7	10.5	9.2
SID Lys	0.21	0.28	0.32	0.19
SID Met	0.15	0.17	0.16	0.15
SID M + C	0.31	0.41	0.35	0.28
SID Thr	0.24	0.29	0.26	0.25
SID Iso	0.25	0.37	0.31	0.32
SID Try	0.05	0.13	0.09	0.10
SID Arg	0.32	0.48	0.42	0.31
SID His	0.21	0.24	0.18	0.17
SID Leu	0.84	0.70	0.59	1.02
SID Val	0.34	0.45	0.42	0.40
SID Phe	0.34	0.48	0.42	0.41

Source: Evonik AminoDat 5.0



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