COLOMBO PBR IMI Lentil

High yielding disease resistant large seeded IMI tolerant red lentil

KEY FEATURES

- **Highest yielding of all the large and medium sized IMI red lentil varieties** across 25 independent NVT trials in 2023 & 2024
- **High level ascochyta blight disease resistance,** good level of BGM resistance
- **Developed from a PBA Jumbo2PBR background with similar plant type**, disease resistance and reaction to boron and salinity
- **Moderate to good vegetative frost tolerance, superior to all IMI varieties** (except GIA MetroPBR - good and GIA ThunderPBR, GIA LeaderPBR & PBA Kelpie XTPBR similar rating)
- **Mid to late flowering and mid maturing** variety similar to GIA LightningPBR
- **Tolerant to applied IMI** (Intercept®, as per label) and the residual levels of IMI and SU is equivalent to existing XT and GIA varieties
- **Seed size and colour suited to similar human food markets** as other Australian large red varieties
- **Independent NVT 100 Grain weight data** 1% higher than PBA Kelpie XTPBR across 23 sites in Australia (2023-24)

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COLOMBO Φ PBR
IMI Lentil

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GRAIN YIELD & ADAPTATION

GIA Colombo^{Φ} is the highest yielding imidazolinone (IMI) tolerant large seeded red lentil averaged across all growing areas of southern and western Australia in GRDC NVT trials from 2023 to 2024. GIA Colombo^{Φ} grain yield averaged 3 & 12% higher than PBA Kelpie XT^{Φ} (large), across 14 sites in 2023 and 11 in 2024 (see table below).

In limited comparisons, from both GIA breeding and NVT trials, under conventional herbicide production systems GIA Colombo^{Φ} has shown similar yields (within +/- 5%) of the conventional large seeded variety PBA Jumbo 2^{Φ}.

GIA Colombo^{Φ} is a large seeded alternative to PBA Jumbo 2^{Φ}, where IMI tolerance is required, and PBA Kelpie XT^{Φ}, for improved yield and disease resistance across all regions. It also provides an alternative to the high yielding broadly adapted GIA Thunder^{Φ} where improved disease resistance and/or large seed is a priority.

GIA Colombo^{Φ} is a mid to late flowering and mid maturity variety suited to environments with a longer growing season, such as the Wimmera in Victoria and South East of South Australia (SE SA). Yield and agronomic evaluation to date suggest it is well suited to higher rainfall, and heavier textured, alkaline soils in longer and more favourable growing regions (yields >1.5 t/ha, see graph below) of the Wimmera, SE SA, Mid North and Yorke Peninsula, particularly where disease is a constraint on lentil production.

All Australia NVT predicted MET yield of lentil varieties by year

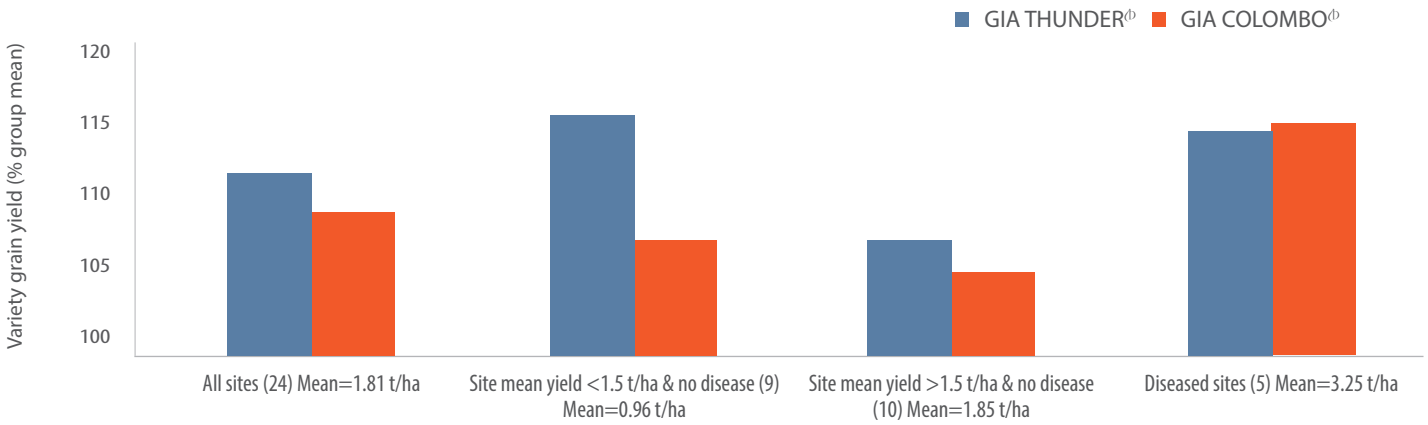
(2023 & 2024)* and 2020-2024 mean (% GIA Thunder^{Φ})

Variety	2023		2024		2020-24	
IMI tolerant varieties						
GIA Colombo^{Φ} (GIA2301L)	**97**	14	**100**	11	**91**	25
PBA Kelpie XT^{Φ}	94	14	88	13	87	65
ALB Dane	95	14	98	11	89	25
GIA Thunder^{Φ}	100	14	100	13	100	65
GIA Lightning^{Φ}	100	14	103	13	92	65
ALB Terrier^{Φ}	95	14	97	13	96	50
GIA Leader^{Φ}	89	14	90	13	86	62
PBA Highland XT^{Φ}	95	14	93	13	87	65
PBA Hurricane XT^{Φ}	92	14	92	13	87	62
PBA Hallmark XT^{Φ}	90	14	88	13	86	65
Conventional variety						
PBA Jumbo2^{Φ}	96	14	93	5	94	57
Year mean yield (t/ha)	*1.87*		*1.54*		*2.12*	

Data accessed 04/09/2025 from NVT Long term Yield Report, nvt.grdc.com.au. Number of trials shown in italic.
**2023 & 2024 individual years only presented as GIA Colombo not tested in 2020-2022.*

Mean lentil yield (% group mean) of GIA Colombo^{Φ} and GIA Thunder^{Φ} grouped by yield and disease presence (ascochyta blight & botrytis grey mould) from GIA breeding trials located in SA and Victoria.

(24 trials - 2022-24, # of trials in each group indicated in brackets).



AGRONOMY

General lentil paddock selection and agronomic production requirements for growing GIA Colombo$^{\Phi}$ are similar to other IMI tolerant lentil varieties. Refer to GRDC Lentil Grownotes and Lentil Ute Guide (www.grdc.com.au). Individual varietal characteristics are listed in the table below.

GIA Colombo$^{\Phi}$ has the same level of tolerance to applied IMI (Intercept®, as per herbicide label) and residual levels of IMI and sulfonylurea (SU) herbicides as current XT lentil varieties (e.g. PBA Hurricane XT$^{\Phi}$, PBA Kelpie XT$^{\Phi}$), GIA Thunder$^{\Phi}$, GIA Leader$^{\Phi}$ and GIA Lightning$^{\Phi}$.

It is imperative growers adhere to product label rates, plant-back periods and all label directions for herbicide use.

GIA Colombo$^{\Phi}$ has a similar flowering time to GIA Lightning$^{\Phi}$ and GIA Leader$^{\Phi}$ and later than PBA Kelpie XT$^{\Phi}$ and GIA Thunder$^{\Phi}$, although relativities can vary with sowing date and climatic conditions across environments.

The maturity timing of GIA Colombo$^{\Phi}$ is also similar to GIA Lightning$^{\Phi}$ and earlier than GIA Leader$^{\Phi}$, but generally slightly later than GIA Thunder$^{\Phi}$. Like PBA Jumbo2$^{\Phi}$, GIA Colombo$^{\Phi}$ matures more evenly than varieties such as PBA Hallmark XT$^{\Phi}$ and PBA Highland-XT$^{\Phi}$ in which, with late season rainfall events, stems can remain green when pods are ripening.

GIA Colombo$^{\Phi}$ is developed from PBA Jumbo2$^{\Phi}$ and has a similar plant type and growth habit, with early plant vigour and erectness at harvest similar to this variety. In limited evaluations to date the levels of pod drop and shattering in GIA Colombo$^{\Phi}$ have generally been found to be similar to those observed in PBA Jumbo2$^{\Phi}$ and GIA Thunder$^{\Phi}$.

As with all lentil varieties the correct application, timing and product selection for effective desiccation is required in GIA Colombo$^{\Phi}$, refer to GRDC Lentil Grownotes and the Lentil Ute Guide (www.grdc.com.au).

DISEASE AND ABIOTIC TOLERANCE

GIA Colombo$^{\Phi}$ has the highest combined disease ratings for ascochyta blight and botrytis grey mould (BGM) of all IMI tolerant large and medium sized lentils making it a good option for lentil growing regions and systems where either disease is a constraint on production. It is provisionally rated as resistant (R) and resistant/moderately resistant (R/MR) for the Nipper and Hurricane virulence strains of ascochyta blight, respectively, by the GRDC NVT National Pathology Rating system. GIA Colombo$^{\Phi}$ is provisionally rated as moderately resistant/moderately susceptible (MRMS) to BGM compared with MS in PBA Kelpie XT$^{\Phi}$, GIA Lightning$^{\Phi}$, PBA Highland-XT$^{\Phi}$ and PBA Hurricane XT$^{\Phi}$. **Disease management for GIA Colombo$^{\Phi}$ should follow the GRDC Lentil Grownotes and the Lentil Ute Guide (www.grdc.com.au) recommendations for the relevant disease ratings.**

GIA Colombo$^{\Phi}$ has improved levels of tolerance (moderate-good) to vegetative frost tolerance over all IMI varieties except for GIA Thunder$^{\Phi}$, GIA Leader$^{\Phi}$ & PBA KelpieXT$^{\Phi}$, where the response is similar and GIA Metro$^{\Phi}$ (rated good).

GIA Colombo$^{\Phi}$ has a similar provisional rating for boron & salt (intolerant) in GIA experiments, and pratylenchus neglectus (MR) in the GRDC NVT National Pathology Rating system, as PBA Jumbo 2$^{\Phi}$.

Preliminary field observations in 2024 suggest GIA Colombo$^{\Phi}$ shows lower iron (Fe) chlorosis compared to most varieties in environments where soil Fe is limiting.

GIA Colombo$^{\Phi}$ has not been assessed for virus resistance and heat tolerance and should be treated as susceptible, or intolerant, for these characteristics.

Agronomic and disease characteristics of GIA Colombo$^{\Phi}$ compared with other lentil varieties

Variety	Early Vigour	Vegetative frost tolerance*	Plant height	Flower time	Maturity	Lodging resistance	Pod drop resistance	Shattering resistance	Ascochyta blight#		BGM#	Root lesion nematode#		Boron tolerance	Salinity tolerance
									Nipper virulent#	Hurricane virulent#		P.neglectus#	P.thornei#		
IMI Tolerant Varieties															
GIA Colombo$^{\Phi}$ (GIA2301L)	**Mod**	**Mod-good**	**Med/ tall(p)**	**Mid-late**	**Mid**	**MR(p)**	**MR(p)**	**MRR(p)**	**R(p)**	**RMR(p)**	**MRMS (p)**	**MR(p)**	**MRMS(p)**	**I(p)**	**I(p)**
PBA KelpieXT$^{\Phi}$	Mod-good^	Mod-good	Med^	Early-mid^	Early-mid^	MRMS^	MR^	R^	MRMS	MRMS	MS	MRMS	MRMS	I^	MI^
GIA Thunder$^{\Phi}$	Mod	Mod-good	Med	Mid	Mid	MRMS	MR	MRR(p)	R(p)	MRMS(p)	MRMS	MRMS	MR(p)	MI	MI
GIA Lightning$^{\Phi}$	Mod	Moderate	Med	Mid-late	Mid	MR	MR	MRR(p)	R(p)	MRMS(p)	MS	MRMS(p)	MR(p)	MI	MI
GIA Leader$^{\Phi}$	Mod	Mod-good	Med	Mid-late	Mid-late	MR	MR	MR(p)	MR	MR	MRMS	MRMS(p)	MR(p)	I	I
ALB Terrier$^{\Phi}$	Mod^	Moderate	Med^	Mid^	Mid^	MRMS^	MR^	MR^	R	MR	MRMS	MRMS(p)	MRMS	MI^	MI^
PBA Hallmark XT$^{\Phi}$	Mod-good^	Poor-moderate	Med^	Mid^	Mid	MR^	MR^	R^	RMR	MRMS	MRMS	MR	MRMS	I^	MI^
PBA Hurricane XT$^{\Phi}$	Mod^	Poor	Med^	Mid^	Mid^	MR^	MR^	R^	RMR	MRMS(p)	MS	MRMS	MRMS	I^	I^
PBA Highland XT$^{\Phi}$	Mod-good^	Poor-moderate	Med^	Early^	Early-mid^	MR^	MR^	MR^	MR	MR	MS	MRMS	MRMS	I^	MI^
Conventional Variety															
PBA Jumbo2$^{\Phi}$	Mod-good^	Mod-good	Med / tall^	Mid^	Mid^	MRMS^	MR^	R^	R	RMR	MR	MR	MRMS	MI^	I^

*Legend: (p) = provisional, Mod = moderate, Med = Medium. ^Data source GRDC Crop Sowing Guides, ALB Terrier$^{\Phi}$ and ALB Dane (October 2025) brochure www.grdc.com.au. #Data source NVT National Pathology Ratings www.grdc-nvt.com.au (July 2025), data derived from controlled environment and/or field nurseries. *GIA field-based ratings prior to podding and relative to PBA Hurricane XT$^{\Phi}$(poor).*

COLOMBO® PBR IMI Lentil

GRAIN QUALITY & MARKETING

GIA Colombo® produces large lens shaped red lentil grain with a grey seed coat. Grain size, as measured by average 100 grain weight in NVT trials 2023-24, is similar but generally slightly heavier than PBA Kelpie XT® (1%), and slightly less than PBA Jumbo 2®. It is heavier by 8% than the medium size lentil, GIA Leader®.

Appropriate insect, pest and disease management practices in GIA Colombo® will assist growers in minimising poor colour and achieving market acceptable grain quality. The high level of disease resistance in GIA Colombo® will also assist growers in minimising poor colour and achieving market acceptable grain quality. **Refer to GRDC Lentil Grownotes and the Lentil Ute Guide (www.grdc.com.au).**

Grain of GIA Colombo® should be segregated for marketing purposes unless otherwise stated, however, its large sized grain, shape and grey seed coat colour are consistent with traditional large red human food marketed varieties such as PBA Kelpie XT® and PBA Jumbo 2®.

Grain characteristics of GIA Colombo® compared with other lentil varieties

Variety	Market category	Seed shape	Seed coat colour	Cotyledon colour	Seed size (g 100 seeds)#
IMI tolerant varieties					
GIA Colombo® (GIA2301L)	**LRS**	**Lens**	**Grey**	**Red**	**4.88**
PBA Kelpie XT®	LRS	Lens	Grey	Red	4.85
GIA Thunder®	SRP	Round	Grey	Red	3.87
GIA Lightning®	SRP	Round	Grey	Red	3.89
PBA Highland XT®	SRP	Round	Grey	Red	3.87
PBA Hurricane XT®	SRP	Round	Grey	Red	3.62
ALB Terrier®		Round	Grey	Red	3.92
PBA Hallmark XT®	MRS	Lens	Grey	Red	4.08
GIA Leader®	MRS	Lens	Grey	Red	4.54
Dual herbicide tolerant variety					
GIA Metro®	LRS	Lens	Grey	Red	4.75
Conventional variety					
PBA Jumbo2®	LRS	Lens	Grey	Red	5.04*

Legend SRP=small red premium round, MRS=medium red split, LRS=large red split. #Data source NVT Trials 2023-24,23 trial sites across western & southern Australia (balanced data set for all varieties), www.grdc-nvt.com.au. * Data for PBA Jumbo is from many less sites than all other varieties and the value is indicative only.*

SEED PROTECTION & ROYALTIES

GIA Colombo® is protected under Plant Breeders Rights (PBR) legislation. A PBR bag licence applies to the seed purchased. Licensed growers can only retain seed for their own sowing or for sale as a commodity. GIA Colombo® is open marketed with an End Point Royalty (EPR) of $5.40/t (excluding GST), applying upon delivery of all grain of this variety. GIA receives no funding from the Grains Research and Development Corporation (GRDC) or state and federal governments for breeding and therefore EPR's are critical for GIA to continue delivering innovative varieties that increase on-farm profitability for growers.

BREEDING

GIA Colombo® was developed by Grains Innovation Australia (GIA) and developed from the popular and broadly adapted conventional variety PBA Jumbo 2® using conventional breeding techniques. It was evaluated in NVT, GIA breeding and commercial agribusiness trials as GIA2301L. GIA Colombo® is commercialised by PB Seeds and seed available for sowing from 2026.

SEED ENQUIRIES

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The information in this document is current as at October 2025. For updated information after this date, please refer to the GRDC NVT, PBSeeds and GIA (www.grainsinnovation.com) websites

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