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# **ASSESSMENT OF THE SALES VOLUME AND VALUE OF THE AUSTRALIAN PASTURE SEED INDUSTRY**



PREPARED BY THE AUSTRALIAN SEED FEDERATION

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## Executive Summary

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This project assessed the volume and value of the Australian pasture seeds industry for the first time. Data for 2016/17 to 2020/21 was supplied by participating pasture seed companies who are members of the Australian Seed Federation (ASF). Ten pasture seed companies participated in the project. The sales of these companies are estimated to account for 85% of the Australian domestic pasture seed market.

The industry in Australia supplies 40,000 to 45,000 tons of pasture seed annually. This represented a value of \$234 million in 2021 to pasture seed companies.

One interesting trend over the past five-year period is the growth in use of improved proprietary seed from 61% to 68%. This highlights the recognition by livestock producers and their advisors of the extra value they can receive from planting newer varieties.

For the past 2020/21 financial year, 41,500 tons of seed resulted in some 2.4Mha of pastures and forage crops being sown. Of this area, approximately 800,000ha was sown as temperate perennial pastures, 200,000ha of sub-tropical perennial pastures, 500,000ha of annual pastures, 300,000ha of winter forage crops and 600,000ha of summer forage crops.

Further analysis of the value of this annual seed sown highlights its contribution to the meat, milk and wool industries in Australia. Whilst those sown pastures will also require fertilizer, agricultural chemical, machinery and labour inputs (all providing additional multiplier input effects), the farm gate production of the seed sown annually delivers:

- 1 billion litres or 11% of national production of milk,
- 260KT or 11% of national production of beef,
- 147KT or 12% of national production of sheep meat, and
- 59.6KT or 21% of national production of wool.

In terms of farm gate value, the annual seed sown delivers:

- \$554M or 14% of the farm gate value for milk,
- \$1,042M or 6% of the annual farm gate value for beef,
- \$628M or 12% of the annual farm gate value for sheep meat, and
- \$759M or 21% of the farm gate value for wool.

All up a total of \$2.98B or 8% of the \$35.3B in farm gate value from the major livestock industries can be attributed to annual pasture seed. The total value of improved pastures to Australia's livestock industries was beyond the scope of this study but is likely to be much greater than the value creation resulting from just the annual pasture seed planted last year.

The annual seed volume creates a further \$5.0B of downstream value in the processing, logistics and retail sales of meat and milk. It has not been possible to estimate the downstream value for wool.

This downstream value is largely responsible for considerable employment outside of that created from the base level primary production of those livestock-based products. Pasture and forage production from seed is the cheapest and most important input to drive productivity, profitability and value along the chain.

## Data Sources and Methodology

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### Sales Volume

Sales volume was obtained from participating pasture seed companies. Participants were asked to provide data to answer one question; what was the sales volume of proprietary seed (kg) and commons/public seed (kg) into the Australian forage market for the financial years 2016/17, 2017/18, 2018/19, 2019/20 and 2020/21 that your company or companies either produced in Australia or imported?

For consistency of data returns, the following guidelines were established:

- A year was defined as 1st July to 30th June financial year;
- Data was requested for the following years 2016/17, 2017/18, 2018/19, 2019/20 and 2020/21 financial years;
- Varieties or products were allocated a species/species group as characterised by the ASF pasture database <https://www.asf.asn.au/seeds/pasture-seed-database/> Refer appendix 1 for a list of species/species groups;
- Proprietary seed was defined as seed that is protected by PBR, patent, trade mark or other exclusive legal right. Common seed then is anything other than proprietary, freely available for production and sale. Answering the question “Can I produce and sell seed without permission or consent?” differentiates the two;
- Proprietary products; seed each company considers their proprietary varieties as defined in the “Australian Marketer” column ASF pasture data base. <https://www.asf.asn.au/seeds/pasture-seed-database/> ;
- Common/public products; non-proprietary varieties as defined as marketed by “Many” in the “Australian Marketer” column ASF pasture data base. <https://www.asf.asn.au/seeds/pasture-seed-database/> Refer Appendix 2 for products defined as common/public;
- Proprietary seed is sales of seed that your company produced in Australia or imported;

- Commons/public seed is total sales regardless of source;
- Note there is a distinction between proprietary/commons/public and a true variety. A variety is an assemblage of cultivated individuals that is distinguished by any character (morphological, physiological, cytological, chemical or other) significant for the purpose of agriculture, forestry, or horticulture and which, when reproduced (sexually or asexually), retains its distinguishing features.

Therefore, implicit in the definition of “Variety” is a substantiated capacity to deliver consistently to the market the described genetic characteristics of the branded pasture seed product.

‘Variety confirmation’ confirms that, following independent verification by the ASF, a branded pasture seed product of a species qualifies for the use of the term “Variety” by way of meeting one or more of the definitions for a “Variety” as nominated by International Union for the Protection of New Varieties of Plants (UPOV) (<http://www.upov>), Organisation for Economic Co-operation and Development (OECD) (<http://www.oecd.org>) or Plant Breeders Rights (PBR) (<http://pericles.ipaustralia.gov.au>).

Not all proprietary products are true varieties as they can be branded products protected for example by a trade mark. Similarly, commons/public products can be true varieties such as varieties that are certified under OECD or Australian seed certification schemes.

- Mixes were reported as the individual components of the mix or the predominate ingredient in the mix;
- Coated seed was reported as coated weight not bare equivalent; and
- Hybrid ryegrasses were allocated to Perennial or Annual/Italian ryegrass. Once allocated, the variety or product must remain with that allocation for the life of the product.

## Data Sources and Methodology

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### Sales value

Estimated total domestic sales value was obtained based on a weighted average retail price per species/species group.

### Consolidated industry value-creation

Data by species was converted to area sown by using average sowing rates for sole grass species, winter and summer forage crops, plus an estimated percentage of companion legumes and herbs when sown alone and not as a part of a mix.

This enabled an estimate of area sown annually by species which was then aggregated into the key groups of temperate annual or perennial pastures, winter or summer forage crops and perennial tropical pastures.

Using average data for yields and key quality characteristics by species, combined with nutritional modeling this then enabled an estimate of the amount of metabolizable energy available for conversion into meat, milk or wool.

To allocate that energy across the key livestock industries, an estimate of the relative footprint of each of dairy, beef and sheep industries was undertaken using latest industry stock numbers and average dse (dry sheep equivalent) ratings for those stock.

This provided a split of 14% dairy, 60% beef and 26% sheep, and it was assumed for the exercise that the energy available was split evenly across each of those livestock types.

To determine production values for dairy, that energy was split into that required for milkers compared to total dairy herd (which includes replacements and dry cows). 72% of the energy used for dairy was used by milkers.

The farm gate value was created by using a weighted average of milk price across Australia's dairy regions. And the downstream value was estimated using an average retail milk price, but did not include value added products such as cheese, yoghurt etc.

For the beef and sheep meat industries a similar exercise was undertaken with a split of energy between slaughtered stock compared to national herd size for beef being 34% and slaughtered lamb and mutton compared to national flock size for sheep being 39%.

Again farm gate value was determined by using average farm gate prices for beef and sheep meat, and downstream value was estimated by using average retail meat price adjusted for dressing percentages for beef at 63% and sheep at 53%.

For wool it was assumed that all the sheep where the total energy was allocated were shorn, as opposed to those slaughtered only.



## Results

### Sales Volume

Ten Australian Seed Federation (ASF) member companies participated in the project (Table 1). The sales of these companies were estimated to account for 85% of the Australian domestic pasture seed market. Without full seed company participation, it does mean that some sales are not accounted for. Non-participant purchases from, and sales to, participants are captured. However, non-participant sales of seed imported, produced, or sourced from other non-participants and sold to other non-participants including farmers are not captured. It is predicted this would relate particularly to annual ryegrass, tropical grasses, tropical legumes and forage sorghum.

**Table 1. Participating pasture seed companies**

Advanta Seeds/Pacific Seeds	Nutrien Ag Solutions
Australian Grain & Forage Seeds	S&W Seeds
Barenbrug Australia	Seed Force
Cropmark Seeds	Valley Seeds
DLF Seeds	Vicseeds





The average total domestic sales volume for the five financial years 2016/17 to 2020/21 was estimated to be 42.7kt. This comprised of 28.3kt (66%) proprietary and 14.4kt (34%) commons/public products (Table 2).

**Table 2. Domestic proprietary, domestic commons/public seed sales volume (kt) for the financial years 2016/17 to 2020/21**

	2016/17	2017/18	2018/19	2019/20	2020/21	5 Year Average
Estimated Total Volume - Domestic Proprietary (kt)	24.3	27.4	31.3	29.9	28.5	28.3
Estimated Total Volume - Domestic Commons/Public (kt)	15.4	14.8	13.6	15.1	13.0	14.4
Estimated Total Volume - Domestic (kt)	39.8	42.2	44.9	45.0	41.5	42.7

### Sales Value

The total retail value of domestic seed sales for the 2020/21 financial year were estimated to be A\$234m. This comprised of A\$172m (74%) proprietary and A\$61m (26%) commons/public products (Table 3).

**Table 3. Estimated domestic proprietary, domestic commons/public seed sales value (A\$m) for the financial year 2020/21**

Estimated Total Retail Value - Domestic Proprietary (A\$m)	172
Estimated Total Retail Value - Domestic Commons/Public (A\$m)	61
Estimated Total Retail Value - Domestic Total (A\$m)	234

## Results

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### Value Creation

Further analysis of the value of this annual seed sown highlights its contribution to the meat, milk and wool industries in Australia. Whilst those sown pastures will also require fertilizer, agricultural chemical, machinery and labour inputs (all providing additional multiplier input effects), the farm gate production of the seed sown annually delivers:

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In terms of farm gate value, the annual seed sown delivers:

- \$554M or 14% of the farm gate value for milk,
- \$1,042M or 6% of the annual farm gate value for beef,
- \$628M or 12% of the annual farm gate value for sheep meat, and
- \$759M or 21% of the farm gate value for wool.

All up a total of \$2.98B or 8% of the \$35.3B in farm gate value from the major livestock industries.

And this annual seed volume creates a further \$5.0B of downstream value in the processing, logistics and retail sales of meat and milk. It has not been possible to estimate the downstream value for wool.

This downstream value is largely responsible for considerable employment outside of that created from the base level primary production of those livestock-based products. Pasture and forage production from seed is the cheapest and most important input to drive productivity, profitability and value along the chain.



In terms of farm gate value, the annual seed sown delivers;

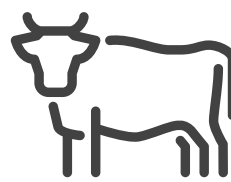
MILK



**\$554M**

**14%** of the farm gate value

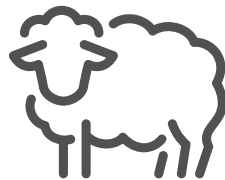
BEEF



**\$1,042M**

**6%** of the farm gate value

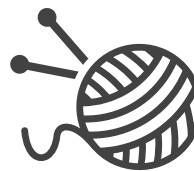
SHEEP MEAT



**\$628M**

**12%** of the farm gate value

WOOL



**\$759M**

**21%** of the farm gate value



## Acknowledgements

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This project was delivered by Bill Fuller Consulting. Bill Fuller BAgrSc, GDipBus, MBA, MAICD is currently the part time CEO of the Australian Seeds Authority (ASA) and is highly respected in the seed industry having been a former CEO of the Australian Seed Federation.

The consolidated sales data was analysed by Michael Gout, an agricultural economist with 40 years' experience in pastures and 27 of those years involved in the seed industry.

Australian pasture seed companies provided estimated industry data.

A steering committee comprising representatives from the Australian Seed Federation's Science and Technology Working Group provided direction and guidance on the project.





## **Appendix 1. Species/species groupings**

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Annual Ryegrass (Diploid)	Serradella
Annual Ryegrass (Tetraploid)	Biserrula
Italian Ryegrass (Diploid)	Vetch
Italian Ryegrass (Tetraploid)	Medic
Perennial Ryegrass (Diploid)	Lucerne
Perennial Ryegrass (Tetraploid)	Rhodes Grass
Tall Fescue	Buffel Grass
Phalaris	Panic Grasses
Cocksfoot	Digit Grass
Other Perennial grasses	Signal Grasses
Sub Clover	Other Tropical Grasses
Other Annual Clovers	Tropical Legume
White clover	Forage Brassica
Red Clover	Herbs
Forage cereals	Millet
Forage sorghum	Maize

## Appendix 2. Products defined as commons/public

Products defined as common/public in the ASF Pasture Database

<https://www.asf.asn.au/seeds/pasture-seed-database>

Species	Common / Public
Annual Ryegrass	Wimmera
Annual/Italian Ryegrass	Thunder Tetila Grasslands Tama
Perennial Ryegrass	Victorian Nui Kangaroo Valley
Tall Fescue	Au Triumph Demeter
Phalaris	Australian Holdfast Landmaster Sirolan Sirosa
Cocksfoot	Currie Porto
Prairie Grass	Matua Free Flow Matua
Sub Clover	Clare Dalkieth Denmark Daliak Nungarin Seaton Park Junee Woogenellup Goulburn Karridale Trikkala Meteora Riverina Gosse Leura

Species	Common / Public
Persian Clover	Enrich Maral (Shaftal)
Arrowleaf Clover	Seelu
Balansa Clover	Paradana
Berseem Clover	Carmel
Crimson Clover	Caprera
Gland Clover	Prima
Rose Clover	Hykon
White Clover	Haifa Grasslands Huia Grasslands Pitau Irrigation
Red Clover	Hamua USA Red Redquin Turoa Pawera
Strawberry Clover	Palestine O'Connors
Serradella	Elgara Madeira
Biserrula	Casba Mauro

Species	Common / Public
Vetch	Namoi Popany
Barrel Medic	Paraggio Sephi Jemalon
Burr Medic	Santiago
Gama Medic	Paraponto
Murex Medic	Zodiac
Snail Medic	Sava Kelson
Sphere Medic	Orion
Strand Medic	Angel Harbinger Harbinger HR
Lucerne	CUF 101 Siriver Trifecta Aurora Hunterfield Hunter River
<b>Tropical Grasses</b>	
Pucinellia	Menemen
Veldt Grass	Mission
Angleton Grass ( <i>Dichanthium aristatum</i> )	Floren
Bahia Grass ( <i>Paspalum notatum</i> )	Argentine Pensacola
Bambatsi Panic	Bambatsii
Brachiaria ( <i>Brachiaria decumbens</i> )	Signal Grass
Brunswick Grass ( <i>Paspalum nicorae</i> )	Blue Dawn
Buffel Grass ( <i>Cenchrus ciliaris</i> )	American Biloela Gayndah Nunbank
Carpet Grass ( <i>Axonopus affinis</i> )	Narrowleaf



Creeping Blue grass ( <i>Bothriochloa insculpta</i> )	Bisset
Couch Grass ( <i>Cynodon dactylon</i> )	Common Giant Bermuda
Digit Grass ( <i>Digitaria ciantha</i> )	Premier
Finger Grass ( <i>Digitaria milanjiana</i> )	Jarra Strickland
Forest Blue Grass ( <i>Bothriochloa blauhii</i> )	Swann
Green Panic ( <i>Megathyrsus maximus</i> var. <i>pubiglumis</i> )	Petrie
Guinea Grass ( <i>Megathyrsus maximus</i> )	Hamil
Hamil Grass ( <i>Panicum maximum</i> )	Common
Humidicola ( <i>Uroahloa humidicola</i> )	Common
Indian Blue Grass ( <i>Bothriochloa pertusa</i> )	Bowen Keppel
Kikuyu ( <i>Pennisetum clandestinum</i> )	Common Whittet
Lovegrass ( <i>Eragrostis curvula</i> var. <i>conferta</i> )	Consol
Mitchell Grass ( <i>Astrebla</i> spp)	Common
Molasses Grass	Common
Panic ( <i>Atra paspalum</i> )	Common
Panic ( <i>Panicum maximum</i> )	Common
Para Grass	Common
Paspalum	Common Broadleaf
Purple Pigeon Grass ( <i>Setaria incrasata</i> )	Common
Rhodes Grass ( <i>Chloris gayana</i> )	Callide Finecut Pioneer Katambora

Sabi Grass ( <i>Urochloa masambicensis</i> )	Nixon
Setaria ( <i>Setaria</i> spp)	Kazungula Narok Solander Splenda
Signal Grass ( <i>Brachiaria decumbens</i> )	Signal
<b>Tropical Legumes</b>	
Axillaris ( <i>Macrotyloma axillare</i> )	Archer
Burgundy Bean ( <i>Macroptilium bracteatum</i> )	Cadarga
Butterfly Pea ( <i>Clitoria ternatea</i> )	Blue Pea Milgarra
Centro ( <i>Centrosema pubescens</i> )	Cardilo Common Centro
Cowpea ( <i>Vigna unguiculata</i> )	Caloona Poona Red Caloona Ebony
Creeping Vigna ( <i>Vigna parkeri</i> )	Shaw
Desmanthus ( <i>Desmanthus virgatus</i> )	Jaribu Marc
Desmodium ( <i>Desmodium intortum</i> )	Greenleaf
Forage Peanut ( <i>Arachis pintoi</i> )	Amarillo
Glycine ( <i>Neonotonia wightii</i> )	Cooper Malawi Tinaroo
Joint Vetch ( <i>Aeschynomene paniculata</i> )	Common
Lablab ( <i>Lablab purpureus</i> )	Highworth Koala Rongai

Leucaena (Leucaena leucocephala)	Cunningham Peruvian Tarramba
Lotononis (Lotononis bainesii)	Miles
Roundleaf Cassia (Chamaecrista rotundifolia)	Wynn
Siratro (Macroptilium atropurpureum)	Common Aztec Atro
Stylo (Stylosanthes hippocampoides)	Amiga Oxley
Stylosanthes seabrana	Primar Seca Unica Verano

### Participating pasture seed companies

Advanta Seeds/Pacific Seeds	Nutrien Ag Solutions
Australian Grain & Forage Seeds	S&W Seeds
Barenbrug Australia	Seed Force
Cropmark Seeds	Valley Seeds
DLF Seeds	Vicseeds



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