



Australian Export Grains Innovation Centre

GRAIN SUPPLY CHAINS IN AUSTRALIA: COSTS AND ISSUES

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Primary Industries and
Regional Development



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AEGIC is an initiative of the Western Australian State Government and Australia's Grains Research and Development Corporation



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Preamble.....

Grain supply chains are changing. Some changes are liable to be long-lasting and will affect grain flows and grain quality.

I outline the main changes in grain supply chains and how cost components within grain supply chains have altered.

Implications for end users, such as millers, are briefly discussed.

Our supply chains are expensive.....

Cost components of grain supply chains (\$/t)

	2014	
	Canada	Australia
Cartage farm to upcountry site	10.7	8.9
Upcountry handling	15.2	14.4
Storage	17.7	8.9
Transport upcountry to port	46.8	27.8
Port charges	13.9	21
Levies & check-offs	3.0	2.8
Total supply chain cost	107.3	83.8
Production cost	139.1	157.1
Supply chain proportion of FOB price	0.44	0.35

Our supply chains are expensive.....

Cost components of grain supply chains (\$/t)

	2014		2015/16
	Canada	Australia	Ukraine
Cartage farm to upcountry site	10.7	8.9	4.3
Upcountry handling	15.2	14.4	7.7
Storage	17.7	8.9	2.9
Transport upcountry to port	46.8	27.8	13.3
Port charges	13.9	21	23.8
Levies & check-offs	3.0	2.8	4.9
Total supply chain cost	107.3	83.8	56.9
Production cost	139.1	157.1	133.0
Supply chain proportion of FOB price	0.44	0.35	0.30

Our supply chains are expensive.....

Cost components of grain supply chains (\$/t)

	2016	
	Russia	Australia
Cartage farm to upcountry site	3.5	7.8
Upcountry handling and storage (incl. farm storage)	14.3	27.4
Transport upcountry to port	15.5	26.7
Port charges	22.4	19.9
Levies & check-offs	0.10	2.8
Total supply chain cost	55.8	84.6
Production cost	121.1	216.1
Supply chain proportion of FOB price	0.32	0.28

Our supply chains are expensive.....

Cost components of grain supply chains (\$/t)

	2017	
	Argentina	Australia
Cartage farm to upcountry site	3	8.1
Upcountry handling and storage	15.2	16.0
Transport upcountry to port	30.7	24.5
Port charges	16.2	22.5
Levies & check-offs		2.9
Total supply chain cost	65.1	74.1
Production cost	172.20	192.0
Supply chain proportion of FOB price	0.27	0.28

Why are our supply chains expensive?

- **Low yields**
- **Less intensity of cropping (mixed farms, mostly 1 crop a year)**
- **Grain-only rail lines**
- **Volatile yields**
- **Different rail gauges**
- **Expensive labour**
- **Different governments (local, state, federal), lots of regulation**

What's happening in wheat exporting; our main crop industry

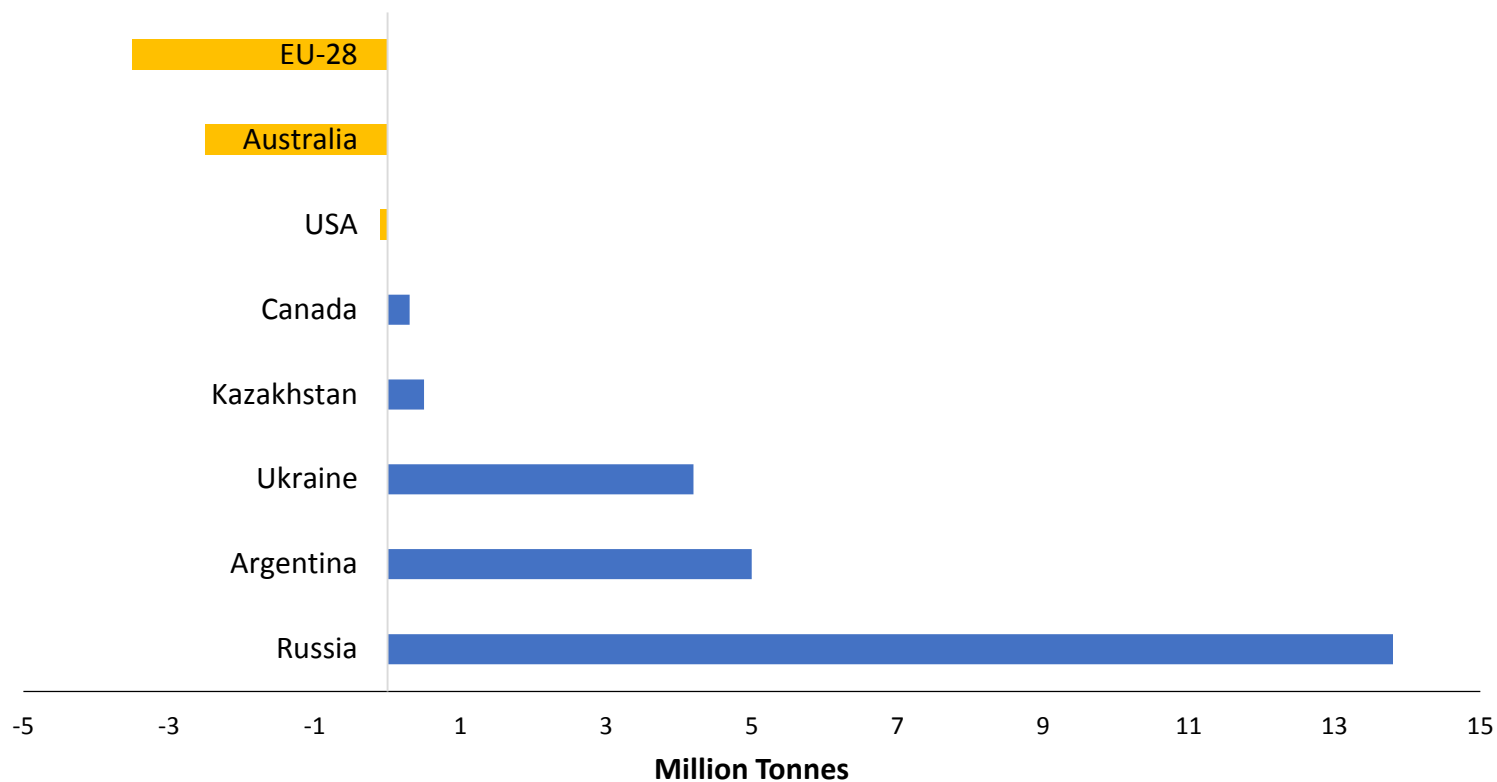
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Increase or decrease in wheat exports in 2017/18 compared to the average of the previous 5 years





Typical upcountry commercial elevators in Ukraine



Underway in Argentina is a 500 kilometre track renewal program north of Rosario. This involves a \$US2.8 billion investment in tracks, locomotives and wagons from Chinese sources. Of the 500 kilometres to be upgraded, 230 kilometres were already completed by September 2017.

New larger capacity rail wagons (65 tonnes) in operation in Rosario, Argentina.





G3 terminal under construction at the Port of Vancouver, Canada
(180kt port storage, 6mmt annual export capacity, opening in 2019)



Supply chains must accommodate an increased variation in the value of their throughput

De-trended Wheat Revenue Variance

	NSW	VIC	QLD	SA	WA
1995 to 2013	0.27	0.21	0.15	0.18	0.12
1980 to 1994	0.13	0.13	0.07	0.08	0.05
1965 to 1979	0.05	0.05	0.09	0.04	0.03
1950 to 1964	0.05	0.01	0.02	0.03	0.01



Sources of wheat revenue volatility

	Area	Yield	Price
	%	%	%
NSW			
1995 to 2013	3.8	79.0	17.2
1980 to 1994	5.9	87.5	6.6
1965 to 1979	21.5	67.1	11.4
1950 to 1964	6.1	89.5	4.5
1935 to 1949	7.4	86.5	6.1
1922 to 1934	24.2	69.4	6.4
VIC			
1995 to 2013	1.8	78.3	19.9
1980 to 1994	5.4	87.8	6.8
1965 to 1979	27.0	60.0	13.0
1950 to 1964	37.0	46.0	17.0
1935 to 1949	20.8	74.9	4.3
1922 to 1934	41.5	55.4	3.1

What changes have we seen in Australia's supply chains?

- More port terminals
- More on-farm storage and of better quality
- Fewer up-country receival sites but...
- Upcountry sites with faster receival and outturn capability
- So far, relatively more investment in road vs rail infrastructure

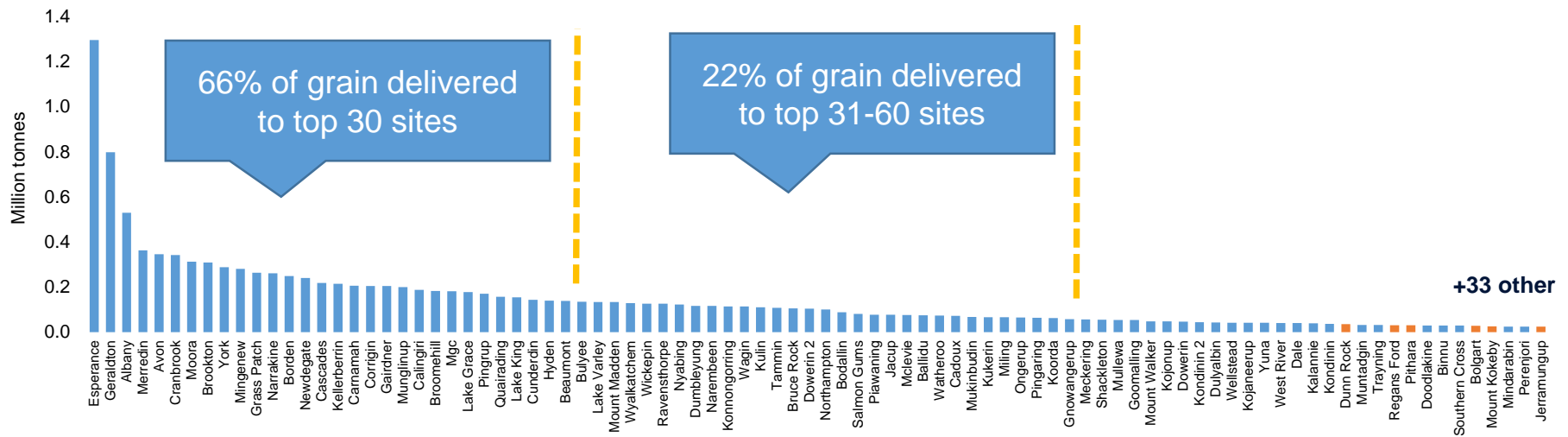
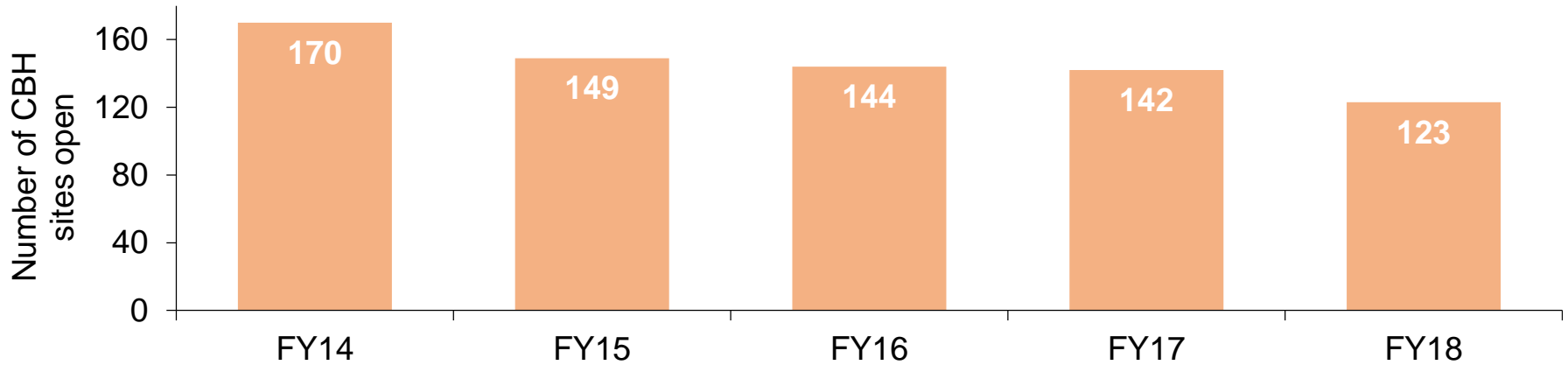
Changes in upcountry receival sites

In 2014 there were 623 receival sites in Australia.

Major grain handlers now retain under 480 sites and scores of these are destined for closure over the next decade. Many sites now only open in years with large harvests.

As examples, in SA, 80% of the grain was received in only about 30 sites in 2016. In WA, in 2017, 88% of the harvest was received by only 60 sites.

An example of change





New open bulkheads at
Koorda, WA

New Bunge grain terminal at
Bunbury, WA



Australia's Rail & Road Infrastructure

Australia's road infrastructure is ranked much higher than that of several of its main grain export competitors; Argentina (96), Russia (114) and Ukraine (133); although still behind, France (7), the USA (10) and Canada (22).

Australia's railroad infrastructure ranks very poorly compared with that of most of its major grain export competitors. Australia sits at 35th - on par with Ukraine (37th) but well behind France (5), the USA (10), Canada (16) and Russia (23).



In Canada's rail system, newly designed rail wagons are enabling unit trains of up to 144 wagons to convey up to 14,400 tonnes per train rather than the previous norm of around 10,000 tonnes. Institutional arrangements regarding maintenance of the air-brake systems in unit trains at upcountry elevators has greatly improved the speed of coupling and departure efficiency and facilitated train crew management. Rail loops are being constructed at some upcountry terminals and at the new G3 terminal at the Port of Vancouver. The G3 terminal includes a rail loop track capable of holding three 134 wagon unit trains.

Implications for local grain end-users

- Improvements in the quality and quantity of on-farm storage mean improved access to grain of sufficient quality with more direct sales.
- The quality of roads and improvements in truck technologies facilitate grain purchasing and just-in-time delivery.
- Australia's end-point royalty system and commerciality in plant breeding are a comparative advantage for grain production in Australia.



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Thank You



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