



Australian Government
Department of Agriculture
and Water Resources
ABARES

The future of Chinese agricultural policy

Opportunities and challenges for Australian grains, beef and dairy exports

James Fell

Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

Research report

February 2019



© Commonwealth of Australia 2019

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia (referred to as the Commonwealth).

Creative Commons licence

All material in this publication is licensed under a Creative [Commons Attribution 4.0 International Licence](#) except content supplied by third parties, logos and the Commonwealth Coat of Arms.

Inquiries about the licence and any use of this document should be emailed to copyright@agriculture.gov.au.



Cataloguing data

This publication (and any material sourced from it) should be attributed as: Fell, J 2019, *The future of Chinese agricultural policy: opportunities and challenges for Australian grains, beef and dairy exports*, ABARES research report 19.2, Canberra, February. CC BY 4.0. <https://doi.org/10.25814/5c5ccec8512c>

ISBN 978-1-74323-420-4

ISSN 1447-8358

This publication is available at agriculture.gov.au/publications.

Department of Agriculture and Water Resources

GPO Box 858 Canberra ACT 2601

Telephone 1800 900 090

Web agriculture.gov.au

The Australian Government acting through the Department of Agriculture and Water Resources, represented by the Australian Bureau of Agricultural and Resource Economics and Sciences, has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Agriculture and Water Resources, ABARES, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying on any of the information or data in this publication to the maximum extent permitted by law.

Contents

Executive summary.....	iv
Introduction.....	6
Announced policy adjustments.....	7
1 Grains.....	9
Bilateral trade opportunities and challenges.....	11
2 Beef.....	15
Bilateral trade opportunities and challenges.....	16
3 Dairy.....	19
Bilateral trade opportunities and challenges.....	21
4 Agricultural cooperation opportunities.....	25
5 Conclusion.....	28
References.....	30

Tables

Table 1 Selected grain and rapeseed (including canola) production, China, 2017–18.....	10
Table 2 Trade in grains and rapeseed (including canola), China and Australia, 2017–18.....	10
Table 3 Beef and veal production, 2017–18.....	16
Table 4 Trade in beef and veal, China and Australia, 2017–18.....	16
Table 5 Dairy production, 2017.....	20
Table 6 Trade in dairy products, China and Australia, 2017–18.....	20

Figures

Figure 1 Chinese WMP and infant formula imports and world WMP indicator price, 2008 to 2017.....	19
Figure 2 Exports of bovine semen, Australia to China, 2008–09 to 2017–18.....	21
Figure 3 Bovine semen imports, China, by source, 2008 to 2017.....	22

Maps

Map 1 Average share of national corn production by province, mainland China, 2012 to 2016 ..	12
Map 2 Average share of national pig meat production by province, mainland China, 2012 to 2016 ..	13
Map 3 Average share of national cow milk production by province, mainland China, 2012 to 2016.....	23

Executive summary

China announced major changes in its direction of agricultural policy.

Each year China sets out policies in its *No. 1 Document*. The 2017 *No. 1 Document* was unique because it marked a clear directional change for Chinese agricultural policy. The emphasis of the new policy direction is on supply side reform. The longevity of the reforms in the 2017 *No. 1 Document* was unclear, but the 2018 *No. 1 Document* and *Rural Revitalisation Strategic Plan 2018–2022* confirmed a continuation of the 2017 reform direction, with an emphasis on the revitalisation of rural areas. This report provides a qualitative assessment of the reforms, focussing on the 2017 announcements.

The changes feature principally supply-side structural reform of Chinese agriculture.

Broadly speaking, the reforms described in the 2017 *No. 1 Document* include industrialising agriculture, increasing the size of farms, identifying regions for production specialisation, broadening the range and quality of crops, improving the quality of livestock products and using international markets to complement domestic supply. Commodity-specific policies include reducing corn production and stockpiles, continuing the market pricing of corn, maintaining current production levels of pork, rice and wheat, and raising sheep, goat and beef production.

Reforms are also regulatory, with a major focus on food quality and safety rules.

Food safety and quality are a major focus of the new policies. Other institutional policy adjustments include strengthening international agricultural cooperation and strengthening scientific research.

The outlook for Australia's grain exports to China is mixed.

Moves to improve production specialisation and grain quality are expected to make Chinese grain more price-competitive and could soften demand growth for Australian grain for milling purposes. On the other hand, livestock sector developments should increase demand for imported feed wheat and barley once China's corn stocks have fallen from elevated levels.

The changes present new opportunities for Australian livestock product exporters.

Overall the picture appears positive for livestock exporters. Demand for Australian milk powders is expected to be boosted by China's dairy product production goal, which would likely require higher powder imports. The improvement of food safety standards is expected to boost import demand for meat from countries like Australia that can readily comply with higher standards. The industrialisation of China's livestock industries is expected to result in higher demand for Australian live feeder cattle.

Other countries are already exploiting the demand for improved livestock genetics.

The Chinese Government's direction for genetic improvements in dairy and beef cattle provides Australia with opportunities to increase breeder cattle and bovine semen exports. Despite concerns that selling Australia's genetic stock reduces demand for Australian livestock products in the long term, if Australia doesn't export high quality genetic material then other countries will do it and take advantage of short term demand. Australia would forgo an opportunity. Australia is currently a minor exporter of genetic material to China where the market is dominated by Canada and the United States.

Strong income growth is likely to offset the effects of policy changes.

The growing demand from China for agricultural products is expected to remain a major influence on Australian agriculture regardless of policy changes. However, an understanding of the changing policy environment will be important for Australia's agriculture industry if it is to maximise gains into the future.

The policy reforms present mutually beneficial cooperation opportunities.

Based on the direction of China's agricultural policies and Australia's growth in trade with China, there are potential areas for greater focus to achieve outcomes that are in the interest of both countries. At present, agricultural cooperation in the areas of biosecurity, genetics, food safety and policy development appear the most promising.

Introduction

Every five years since the 1950s the Communist Party of China (CPC) has released a document known as the *Five Year Plan*, which provides the broad policy direction of the CPC. It issued the thirteenth and most recent *Five Year Plan* in December 2015, which covers the period from 2016 to 2020. The thirteenth *Five Year Plan* sets forth China's strategic intentions and defines its major objectives, tasks and measures for economic and social development (CCCCPC 2015).

Additional to the *Five Year Plans*, the Central Committee of the CPC and the State Council jointly produce annual policy documents. These documents are more detailed, containing policies for achieving the objectives and tasks outlined in the *Five Year Plans*. The first policy document, known as the *No. 1 Central Document* (herein referred to as the *No. 1 Document*), was released in 2004 and rural and agricultural issues have been a common focus. Common themes have included addressing low producer incomes, agricultural consolidation and modernisation, rural transformation, water security and water infrastructure.

In addition to the annual *No. 1 Documents*, the Chinese Government produces multi-year plans. Examples of these are the *Development Plan for the Milk Industry 2016–2020*, the *National Beef and Sheep Meat Development and Promotion Plan 2013–2020* and the *Rural Revitalisation Strategic Plan 2018–2022*.

By its nature, the *No. 1 Document* outlines policies without providing specific details. Consequently, only generalised qualitative inferences about economic impacts of the *No. 1 Document's* policies are able to be made. A key change in the 2017 *No. 1 Document* was a focus on supply-side reforms. This was highlighted in the title of the document, "Several Opinions of the CPC Central Committee and the State Council on Carrying forward the Structural Reform of Agriculture on the Supply Side and Accelerating the Cultivation of New Kinetic Energy Driving the Development of Agriculture and Rural Areas." Such a focus is more specific than in past years and contrasts with the 2016 *No. 1 Document*, which focussed on modernising agriculture and improving the prosperity of farmers. Many of the other themes in the 2017 *No. 1 Document* have been carried over from previous years.

The longevity of the 2017 reforms was unclear because new policy announcements are made annually. However, the broad direction of that year's policy changes was confirmed in the release of the 2018 *No. 1 Document*, which had a new emphasis on the revitalisation of rural areas. The new direction was also confirmed in the release of the *Rural Vitalisation Strategy 2018–2022*. Now that the general policy direction has been confirmed, this report focusses on the changes that came to prominence in the 2017 *No. 1 Document*.

The 2017 *No. 1 Document* advocates openness to international markets. This acceptance of a role for international markets has become stronger over the past decade. The 2017 *No. 1 Document* states that China should create a favourable environment for trade in agricultural products and should utilise international markets. While this appears to be overall positive for China's demand for imported agricultural products, trade in the coming years has potential to be affected by China's caveats to this point. It wishes to "refine laws and regulations concerning anti-subsidy, anti-dumping and security measures against agricultural products, and investigate trade subsidies against imported agricultural products according to the law". Depending on

interpretation, this could signal a heightened focus on import-related measures, such as anti-dumping.

The analysis in this report uses translations of the 2017 and 2018 *No. 1 Documents* in USDA–FAS (2017) and USDA–FAS (2018). ABARES released a summary of China’s current policies in Fell & Waring (2017), which was informed by the 2017 *No. 1 Document* and was updated by Fell (2018).

The key policy adjustments that came to prominence in the 2017 *No. 1 Document* can be categorised broadly into two groups: structural and institutional. This is not a comprehensive list, but includes policies that are expected to have particular significance for Australia’s agricultural trade. The structural adjustments include policies that target price-setting mechanisms, and set production and food supply goals. The institutional policy adjustments focus on the broader systems that support China’s agricultural sector. Specific policies from the 2017 *No. 1 Document* are organised under these categories as follows.

Announced policy adjustments

Structural policy adjustments

Price policy adjustments

Subsidies:

- restructuring soybean subsidies
- dismantling and replacing the three-subsidies system (payments for general income support, seed and machinery). This involves replacing the old three-subsidies system with other subsidies and separating corn subsidies from prices.

Market:

- recommitting to the minimum prices for rice and wheat
- continuing the practice of allowing the market to determine the price of corn
- restructuring the dairy industry.

Production and supply policy adjustments

Supply:

- using international markets to complement domestic supply
- reducing corn stocks.

Production:

- increasing the size of farms
- targeting zero growth for chemical use in agricultural production
- identifying the most productive regions for particular commodities
- broadening the range of crop varieties, and quality and range of crop outputs, such as high and low protein wheat

- maintaining current production volumes of rice and wheat
- reducing corn production
- raising herbivorous livestock production
- maintaining current pig meat production volumes.

Institutional policy adjustments

Strengthening international cooperation in agriculture

Refining food safety standards

Strengthening scientific research

Chapters 1, 2 and 3 of this report provide an assessment of the policy changes and the potential consequent impacts on China's import demand for Australian grains, beef and dairy products, in that order. The impacts are presented according to key economic themes. Chapter 4 discusses the opportunities for enhanced agricultural cooperation between the two countries stemming from the new policy direction. Chapter 5 summarises the potential implications of the policy changes for Australia.

1 Grains

China is one of the world's major consumers of feed grains and the world's top wheat producer and consumer. Domestic production of corn and wheat has historically been supported by high minimum prices set by the government, but grain support policies are slowly changing. Because of the size of China's grain market, such changes can have significant implications for the global grain market. An overview of the size of China's grain market and its importance to Australia is provided in Table 1 and Table 2.

Since 2016 the grain market landscape has been set by the government's abandonment of minimum corn prices and its commitment to market price setting for corn. This followed many years of rising corn stocks and a consequent growing financial burden on the Chinese Government (Fell & Waring 2017). Corn stocks rose as producers responded to the high minimum producer price by producing corn in excess of consumption needs. The domestic market price of corn has since declined. In the 2017 *No. 1 Document* the commitment to these corn market reforms was confirmed.

The Chinese Government also confirmed a commitment to reduce corn stocks in the 2017 *No. 1 Document*. While it did not explain in detail how it intended to do so, there are three different mechanisms that have put downward pressure on corn stockpiles: (i) the cessation of government purchases, (ii) the announcement of subsidies for corn consumers and (iii) the continued observed sale of corn from government stockpiles. Because corn is a feed grain, lower prices of corn place downward pressure on the price of substitutes, such as feed barley and grain sorghum, as consumers substitute towards corn. Lower corn prices also affect producers' planting decisions, since growers may look to more profitable alternatives.

Growth in the Chinese economy is likely to increase demand for grains that are unrestricted by tariff-rate quotas, such as barley and grain sorghum, and this is likely to continue regardless of the policy adjustments. In recent years China has become a major importer of barley and grain sorghum, and Australian producers have benefitted. Both grains can be consumed for specific industrial purposes (malting for barley and distilling for grain sorghum) and for livestock feed. The industrial components of demand are less likely to be affected by policies that affect corn and other grains, as there is little capacity for substitution in barley malting for beer and grain sorghum distilling for baijiu, a Chinese spirit.

In contrast, the corn market policies introduced in 2016 will reshape the feed grain market further, and this will have implications for Australian exporters. In the 2017 *No. 1 Document* additional policies were announced, including subsidies for corn consumption and production, subsidies for encouraging soybean production and improving grain quality. While many of these policy adjustments are focussed on the feed grain market, Australia will also likely be affected by changes to China's wheat policies, as China strives to raise production and quality to meet growing demand.

Some grain policies in the 2017 *No. 1 Document* are likely to support Australia's grain export opportunities, while others may create a more challenging trading environment. In the following section the key grain policies are analysed by grouping their effects under economic themes. It

concludes with a discussion of the overall effect on export opportunities and challenges for Australia.

Table 1 Selected grain and rapeseed (including canola) production, China, 2017–18

Production	Unit	China	Australia	World
Barley	Mt	2	9	144
Corn	Mt	216	0.4	1,034
Rapeseed (including canola)	Mt	14	4	75
Grain sorghum	Mt	3	1	58
Wheat	Mt	123	21	758

Source: ABARES 2018, IGC 2018, USDA 2018

Table 2 Trade in grains and rapeseed (including canola), China and Australia, 2017–18

Exports	Unit	Quantity		Unit	Value	
		China	Australia		China	Australia
Barley	Mt	0	8	A\$m	0	2,303
Corn	Mt	< 1	< 1	A\$m	24	31
Oats	Mt	0	< 1	A\$m	0	104
Rapeseed (including canola)	Mt	0	2	A\$m	0	1,302
Grain sorghum	Mt	< 1	< 1	A\$m	25	138
Wheat	Mt	< 1	15	A\$m	5	4,672
Imports						
Barley	Mt	9	0	A\$m	2,368	0
Corn	Mt	3	< 1	A\$m	785	5
Oats	Mt	< 1	0	A\$m	123	0
Rapeseed (including canola)	Mt	5	< 1	A\$m	2,822	35
Grain sorghum	Mt	5	0	A\$m	1,338	0
Wheat	Mt	4	< 1	A\$m	1,345	1
Australia's exports to China						
Barley	Mt	na	5	A\$m	na	1,418
Canola	Mt	na	< 1	A\$m	na	4
Corn	Mt	na	0	A\$m	na	0
Oats	Mt	na	0	A\$m	na	0
Grain sorghum	Mt	na	< 1	A\$m	na	114
Wheat	Mt	na	1	A\$m	na	294

na Not available.

Note: Data in Australia column are for 2017–18. Data in the China column are for calendar 2017. Values converted from US dollars to Australian dollars using average exchange rate for 2017. Oats exports from Australia do not include bulk oats as a result of ABS confidentiality restrictions. Based on 2017 Chinese import data, 98 per cent of China's oats imports were from Australia.

Source: ABARES 2018, ABS 2018, UN Statistics Division 2018

Bilateral trade opportunities and challenges

Production substitution

Following the corn market reforms, wheat and soybeans could become more attractive production alternatives given their relatively higher producer prices compared with corn. China's wheat producers continue to receive minimum price support and soybean producers receive subsidies additional to those paid to producers of other crops. This potentially constrains growth of China's demand for Australian wheat.

Production substitution arising from corn market reforms is unlikely to directly influence domestic barley production given the attractiveness to producers of wheat and soybean production relative to barley. However, the reforms could have an indirect effect on China's barley production if China's consumers of feed grains (namely livestock producers) increase consumption of the lower-priced corn at the expense of feed barley. This would result in weaker demand for imported feed barley and potentially cause the world price of barley to fall. This would have negative repercussions for Australian exporters, who shipped around \$1.4 billion of barley—including around \$749 million of feed barley—to China in 2017–18.

Corn and soybean producing regions typically overlap with those that produce grain sorghum, another feed grain important to Australia's trade with China. In 2017–18, Australia exported \$114 million of grain sorghum to China. The lower corn prices resulting from recent policy changes are not expected to favour planting of grain sorghum instead of corn, since producers of alternatives, such as soybeans, receive subsidies additional to those already paid for producing grain sorghum. However, like barley, there is potential for reduced production should consumption shift away from grain sorghum towards lower-price corn.

Consumption substitution

Corn

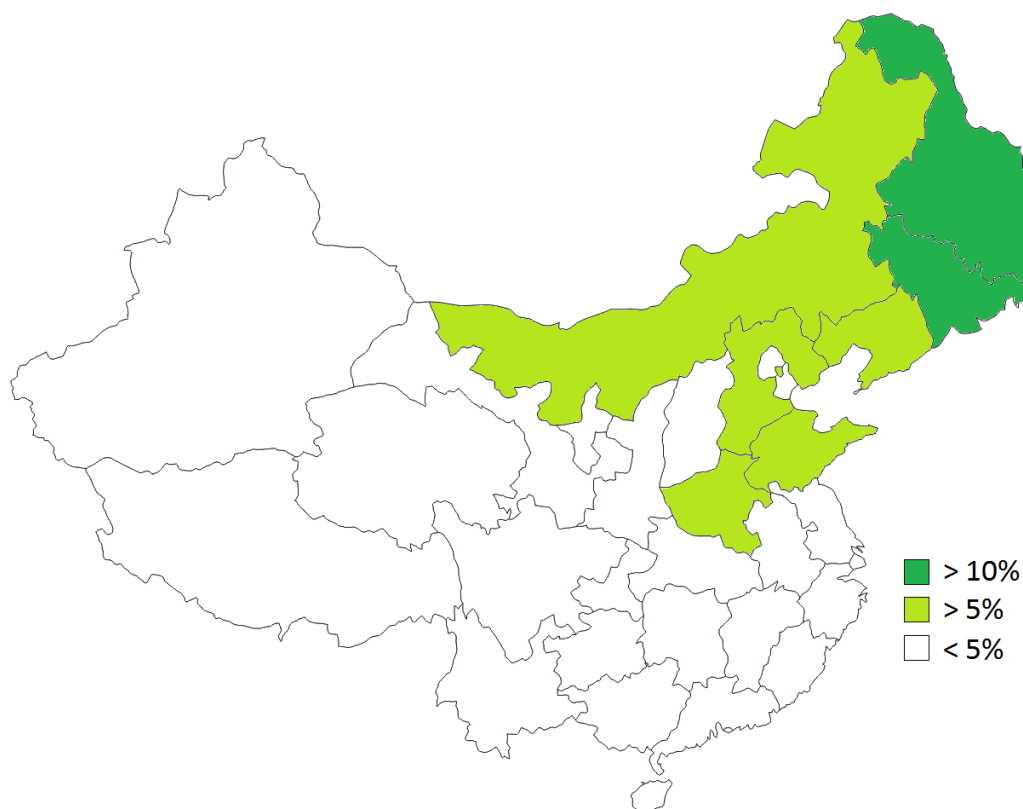
As a major livestock product producer, China is highly reliant on feed grains as an input to production. Lower domestic corn prices can increase the attractiveness of domestically produced corn as an input to livestock production relative to other feed grains. Livestock producers would be expected to substitute towards corn from other feed grains, such as barley and grain sorghum, the supply of which is partly sourced from imports. As a result, Chinese import demand for these two grains would fall.

The increase in the consumption of corn in livestock rations may be limited by distance between China's feed grain stocks and its livestock producing areas. Much of China's corn is produced in the north-eastern provinces (see Map 1) while pig meat production broadly occurs in the central-eastern and southern provinces (see Map 2). The journey by road from the principal corn-producing provinces to the main pig meat-producing province is approximately 2,000 kilometres, so transport costs will play an important role in determining the relative appeal of alternative feed grains.

The price of grain can vary substantially between regions with higher prices for feed grains for producers in regions that are further away from the north-eastern producing areas. For example, the price of corn in Guangdong in late November 2017 was CNY2,090 per tonne, 33 per cent higher than the average price of corn in the north-eastern provinces (China Ministry of Agriculture 2017). This represents a premium of around \$100 between the north-eastern provinces and southern China. For this reason, it is possible that importing feed grain from

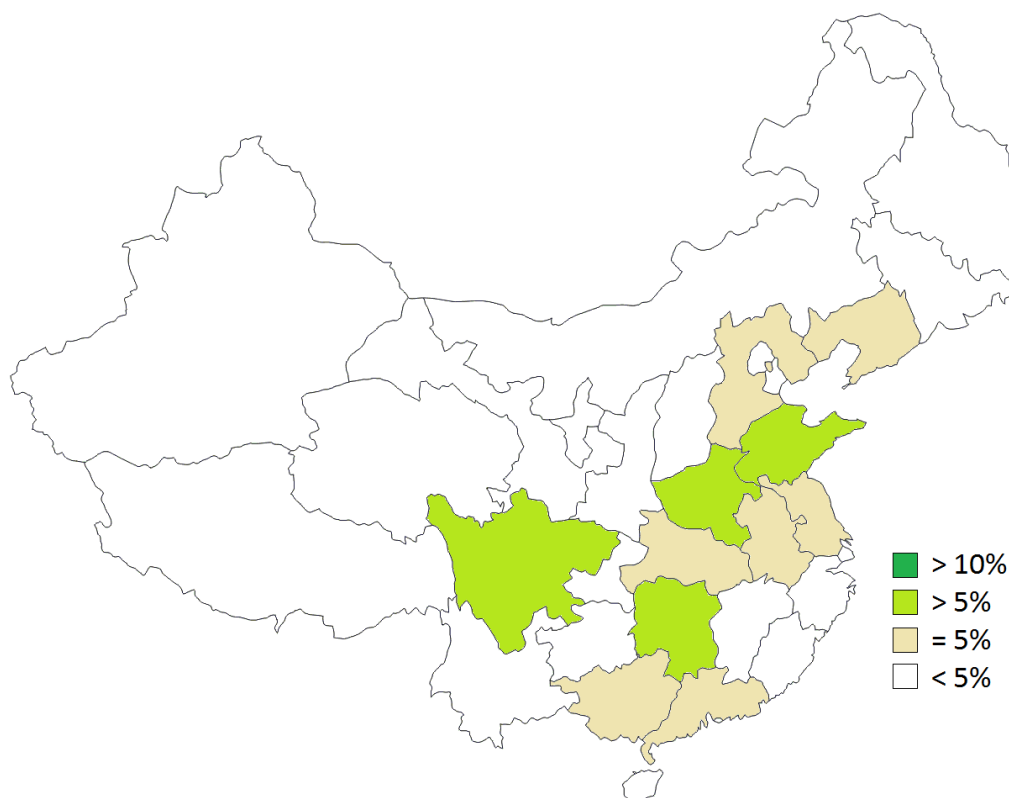
Australia could remain a cheaper option than purchasing it from China's stocks, since bulk grain transport from Australia to China is only around \$20 per tonne (IGC 2017).

Map 1 Average share of national corn production by province, mainland China, 2012 to 2016



Source: NBS 2018

Map 2 Average share of national pig meat production by province, mainland China, 2012 to 2016



Source: NBS 2018

Wheat

Additional to the policy adjustments aimed at its domestic feed grain market, China has also put forward policies for the wheat market. The 2017 *No. 1 Document* targets improving the quality of domestically produced wheat. This includes increasing production of high and low protein wheats. Currently when China lacks wheat of a specific protein specification, it is able to import it from Australia and other countries under a tariff-rate quota. However, if the policy to raise production of both high and low protein wheat is successful, it would lead to substitution away from imports.

Higher feed grain demand from livestock sector

The 2017 *No. 1 Document* has a policy to increase livestock production. Part of the increase in production is to explicitly come from herbivorous livestock industries, such as beef cattle and sheep, and part is to come from the dairy industry. Increased production of dairy will require higher consumption of feed grains as inputs. Pig meat production, which is planned to remain stable, is expected to become more industrialised, which will also require greater use of feed grains. Australia's grains industry is well positioned to support this policy objective.

As part of its policy to improve the quality of agricultural products generally, refine standards for agricultural products and improve food safety (section (I) 5 of the 2017 *No. 1 Document*), China is aiming to improve the quality of its livestock products. This includes, for example, developing a domestic milk supply of a desired protein and fat content, and meat products with fat specifications commensurate with consumer tastes. High-quality feed grain plays an important role in achieving these goals. Feed grain from Australia has the advantage of being

subject to strict testing and buyers can reliably purchase grains of fixed specifications, e.g. relating to protein and colour.

Lower unit production costs

China's policy reforms for its grain market extend across factors affecting the supply of grains. The 2017 *No. 1 Document* includes a number of supply-side reforms, including the push to increase farm sizes and improve property rights, the development of vertically integrated supply chains and the identification of regions best suited to production of grain. These types of reforms tend to reduce unit production costs and increase domestic production. The net result is higher Chinese grain production generally and reduced demand for grain imports. However, specific policy changes are not yet known so it is not possible to make definitive conclusions about the impact on the Australian grains industry.

Summary of implications

There are policies in the 2017 *No. 1 Document* that provide grain export opportunities for Australia and there are policies that could present challenges. These policies are set by the Chinese Government against a background of generally increased demand for grains as a result of continued strong growth in Chinese incomes. However, the expected net effect for Australia's grain exports is ambiguous without detailed quantitative analysis.

There are aspects of China's grain policies that will potentially reduce demand for Australian grains: i) lower unit production costs that make domestic grain more price-competitive, ii) lower corn prices, which increase consumption of corn at the expense of Australian barley and grain sorghum, and iii) increased production of diverse wheat varieties, which could put downward pressure on import demand for grain. In contrast, expected higher demand from China's livestock product sector is likely to support export opportunities for feed grains.

2 Beef

China is one of the largest beef producers in the world. The majority of China's beef processors source cattle from small-holder livestock operations where cattle are fed on residual crops and low-grade feeds (Waldron & Brown 2014). An overview of the size of China's beef market and their importance to Australia is provided in Table 3 and Table 4. Sustained income growth in China has led to rising demand for beef, and is likely to continue to underpin import demand growth in China despite recent policy adjustments.

In the 2017 *No. 1 Document* the Chinese Government sets out a number of policies that could potentially affect Australia's beef trade. In particular, the policies aim to increase the size and improve the efficiency of the beef industry by transitioning it to larger-scale operations, increase beef production and improve herd genetics. These policies are supplemented by policies for the grains industry that reduce the price of feed grains. Other policies from the *No. 1 Document* important to Australia's future beef trade opportunities include those aimed at refining food quality and safety standards, and an openness to international markets.

In 2013, China published an eight-year plan known as the *National Beef and Sheep Meat Development and Promotion Plan 2013–2020* (NDRC 2013). The plan was produced prior to the current national *Five Year Plan for Economic and Social Development* and before recent significant reforms to China's agricultural sector, such as the abandonment of minimum prices for corn and soybeans. However, because the plan covers the period from 2013 to 2020, it is still relevant for this analysis.

The eight-year plan identified five key tasks:

- 1) improve varieties and breeding
- 2) strengthen bovine and ovine disease control
- 3) develop larger scale farming
- 4) develop forage resources
- 5) promote industrialisation of the sector.

These tasks, together with policies in the 2017 *No. 1 Document*, present trade opportunities for the Australian beef industry. In the short term, Australian breeder cattle could contribute to the development of China's beef industry. Opportunities also exist for Australian exporters of high quality beef, as heightened awareness of food safety has influenced the refinement of the food safety and quality standards described in the 2017 *No. 1 Document*. The following section analyses the key policies by grouping their effects under economic themes.

Table 3 Beef and veal production, 2017–18

Category	Unit	China	Australia	World
Cattle numbers, excluding dairy cows	million head	83	23	749
Slaughtering	million head	52	8	243
Production	million tonnes, cwe	7	2	62

Note: Data in Australia column are for 2017–18. Data in China and World columns are for calendar 2017.

Source: ABARES 2018, USDA 2018

Table 4 Trade in beef and veal, China and Australia, 2017–18

Exports	Unit	Quantity		Unit	Value	
		China	Australia		China	Australia
Beef and veal	kt, sw	12	1,123	A\$m	114	7,963
Live pure bred breeder beef cattle	head	0	49,180	A\$m	0	80
Live slaughter/feeder cattle and other breeder cattle a	head	19,229	884,739	A\$m	62	1,098
Imports						
Beef and veal	kt, sw	696	9	A\$m	4,001	69
Live pure bred breeder cattle	head	139,642	na	A\$m	375	na
Live slaughter/feeder cattle and other breeder cattle	head	45,543	na	A\$m	72	na
Australia's exports to China						
Beef and veal	kt, sw	na	141	A\$m	na	1,005
Live pure bred breeder cattle	head	na	40,943	A\$m	na	70
Live slaughter/feeder cattle and other breeder cattle	head	na	27,544	A\$m	na	58

a China's export destinations are Hong Kong and Macau.

Note: Data in Australia column are for 2017–18. Data in China column are for calendar 2017. Values converted from US dollars to Australian dollars using average exchange rate for 2017.

Source: ABS 2018, UN Statistics Division 2018

Bilateral trade opportunities and challenges

Higher demand for safe products

A key part of the 2017 *No. 1 Document* is the emphasis on food safety and quality, standards for which the document states China will comprehensively refine. As a reputable exporter of safe meat products, it is expected that Australia would be able to more readily comply with stricter standards compared with a number of competitors given Australian processors' adherence to pre-existing, stringent, in-country food safety and biosecurity standards, and expertise in animal disease management and biosecurity governance. This will remain an opportunity for as long as Australia maintains an advantage in this area relative to competitors.

Higher demand for improved genetics

Improving the genetics of China's beef cattle herd is an aim stated in the 2017 *No. 1 Document*. Better genetics can improve feed conversion rates (a measure of how a kilogram of feed transforms to a body mass increase), animal health, carcass weights and the quality of the meat. This would assist in achieving the policy objectives identified in the 2017 *No. 1 Document* of

increasing the size and scale of the beef industry, and the quality of livestock and livestock products. This will not be achievable without input from nations with superior stock. As a result, higher import demand is expected by China for breeder cattle and bovine semen until such point that Chinese producers determine that they have appropriate domestic breeding stock.

Higher demand for feeder cattle

China's policies are set to transition the beef industry away from small-holder farms and increase the scale of livestock operations. As a result, numerous companies have recently established feedlots near live cattle import terminals for feeder cattle (USDA–FAS 2016). This private sector response to China's policy direction highlights the expectation of stronger Chinese feedlotter demand for feeder cattle, the source of which appears to require imports, at least in the short term.

Higher domestic production presents downside risks

Despite the opportunities that the 2017 *No. 1 Document* presents for Australian exports of beef, live cattle and bovine genetics, some of the policy directions indicated present downside risks to future demand for Australian products. These include policies that reduce domestic feed grain prices and others that support the increased production of herbivorous livestock products.

Policies that reduce prices of inputs, such as feed grains, improve the profitability of livestock production and stimulate higher production in China. This would have a negative impact on demand for imported livestock products. However, independent of policy adjustments in the *No. 1 Document* and *Development and Promotion Plan*, growth in China's demand for protein is expected to outpace its domestic supply due to increasing incomes and changing consumer preferences. Consequently imports of meat are likely to continue to play an important role in China's food supply for the foreseeable future (Hamshire et al. 2014).

For Australian beef and cattle exporters to maintain or increase exports to China will require they at least maintain competitiveness relative to other exporters. Although Australian product is not price competitive relative to exporters like Brazil, Australia has the capacity to reliably supply a high-quality, certified product to China.

Summary of implications

There are policies in the *No. 1 Document* and *Development and Promotion Plan* that support beef export opportunities for Australia, and others that pose a downside risk to export growth. However, given the projected long term increase in protein demand, the net effect of these policy changes and the expected general increase in demand due to rising incomes and changing preferences are expected to be positive for beef exports.

China's policies aimed at improving food safety and food quality are expected to result in stricter standards for beef. Australian exporters would be expected to be able to more readily comply compared with some competitors, at least in the short term, providing an export opportunity. Policies to improve beef cattle herd genetics in China are likely to lead to stronger import demand for bovine semen and live breeder cows. The policy to increase the scale of beef production is expected to result in higher demand for live feeder cattle.

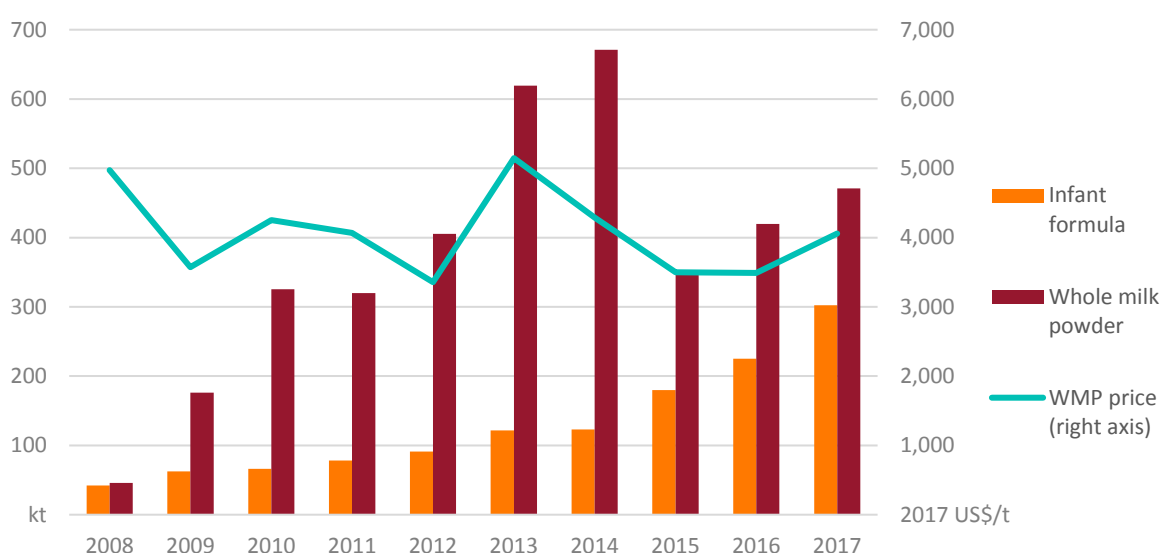
Offsetting some of the generally positive export opportunities for Australia that are presented in the 2017 *No. 1 Document*, is the potential impact of higher domestic beef production. However, import demand for beef is still expected to remain positive if China is to meet the projected

growth in its consumer demand and the challenge for Australia will be to remain competitive relative to other beef exporters.

3 Dairy

Changes to the domestic dairy market in China can have large effects on the world dairy market. A recent example of this occurred in 2008, with the discovery of melamine in locally sourced milk. The discovery significantly affected Chinese consumer perceptions about the safety of locally produced dairy products, reducing demand for domestically produced milk powders, including whole milk powder (WMP). Demand for imported milk powders increased, but because domestic production did not adjust to the lower demand, stocks of domestically produced milk powders rose. Eventually demand for imported milk powders fell as consumers substituted towards imported processed dairy products, including infant formula (Figure 1). The weaker Chinese demand for imported milk powders was a contributing factor to the fall in global dairy prices after 2014 (Whitnall 2017), which influenced the prices received by Australian dairy producers.

Figure 1 Chinese WMP and infant formula imports and world WMP indicator price, 2008 to 2017



Note: For infant formula this graph shows data from HS code 190110, which covers a wide range of preparations of cereals, flour, starch or milk, including infant formula. Infant formula may also be imported under different HS codes. Actual imports may be higher than what is shown.

Source: UN Statistics Division 2018

Policies for improving food quality and safety in the 2017 *No. 1 Document* are expected to raise demand for milk powders, which could present new trade opportunities for Australia. China has already become a significant market for Australian milk powder, with exports of whole milk powder (WMP) increasing by 47 per cent between 2008–09 and 2017–18. China accounted for 38 per cent of Australia's WMP exports in 2017–18, compared with just 11 per cent in 2008–09. Despite recent growth, the future strength of demand for imported milk powders will depend on the rate at which domestic milk powder production rises.

Any significant increase in milk production will be underpinned by China's *Development Plan for the Milk Industry 2016–2020* (Government of China 2017), which aims to restructure the dairy industry and sets specific goals for achievement by 2020. The restructuring includes increasing

milk production by 6 per cent to 41 million tonnes per year, raising milk yields by 25 per cent to 7.5 tonnes per cow per year (implying a consolidation of cow numbers), and increasing production of dairy products by 28 per cent to 35.5 million tonnes per year. The last goal is only achievable with an increase in milk powder imports given the other two targets.

Key statistics on China's dairy production and trade are shown in Table 5 and Table 6.

Table 5 Dairy production, 2017

Production	Unit	China	Australia	World
Milk	kt	36,950	9,293	600,720
Butter ^a	kt	88	69	10,226
Cheese ^a	kt	123	378	20,015
Skim milk powder	kt	30	191	4,782
Whole milk powder	kt	1,350	82	4,795

^a 2014 FAOStat data for China.

Source: ABARES 2018, FAO 2018, USDA 2018

Table 6 Trade in dairy products, China and Australia, 2017–18

Exports to world	Unit	Quantity		Unit	Value	
		China	Australia		China	Australia
Butter	t	1,711	16,231	A\$m	10	116
Casein	t	0	110	A\$m	0	9
Cheese	t	156	171,075	A\$m	2	947
Skim milk powder	t	1,047	156,779	A\$m	3	454
Whole milk powder	t	1,796	48,709	A\$m	9	293
Other dairy products	t	na	na	A\$m	104	1,604
Imports						
Butter	t	91,404	36,401	A\$m	651	271
Casein	t	18,652	2,203	A\$m	190	21
Cheese	t	108,002	110,959	A\$m	649	725
Skim milk powder	t	247,316	10,126	A\$m	783	41
Whole milk powder	t	470,798	29,147	A\$m	2,045	156
Other dairy products	t	na	na	A\$m	2,634	259
Australia's exports to China						
Butter	t	na	1,438	A\$m	na	11
Casein	t	na	0	A\$m	na	0
Cheese	t	na	19,499	A\$m	na	93,157
Skim milk powder	t	na	28,948	A\$m	na	107
Whole milk powder	t	na	18,511	A\$m	na	152
Other dairy products	t	na	na	A\$m	na	766
Live dairy cattle	head	na	28,412	A\$m	na	49

^{na} Not available. Note: Data in Australia column are for 2017–18. Data in China and World columns are for calendar 2017. Values converted from US dollars to Australian dollars using average exchange rate for 2017.

Source: ABS 2018, UN Statistics Division 2018

Bilateral trade opportunities and challenges

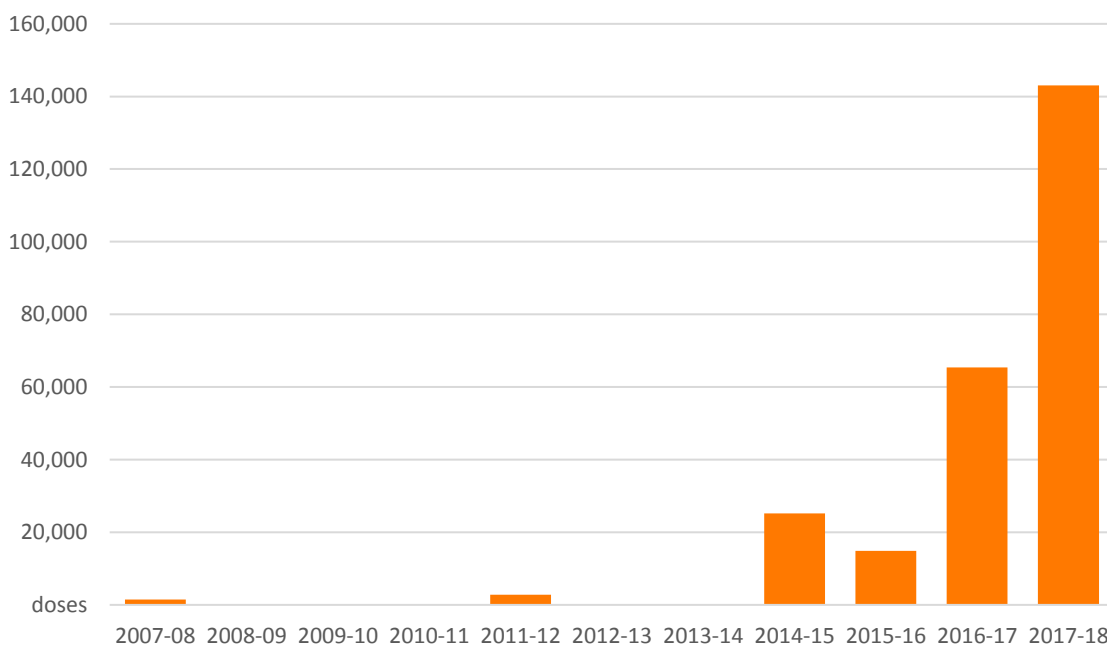
Stronger demand for powders

A key element of the 2017 *No. 1 Document* is a commitment to improve food quality and safety. Assuming government policies to support food quality improve consumers' confidence in domestically produced processed dairy products over the coming decade, demand growth is expected to strengthen beyond the assumed income-driven growth. Since processed dairy products are typically produced from skim and whole milk powders, total demand for milk powder is expected to increase. However, the potential for China to increase milk powder production is potentially limited by the 6 per cent milk production growth target in the *Development Plan*. As a result, growth in dairy manufacturers' demand for milk powders is expected to outpace the anticipated growth in domestic production.

Higher demand for dairy breeder cattle and semen

China aims to improve the genetics of its dairy herd in order to increase milk yields. Improving dairy cattle genetics can be achieved by importing live breeder cows and bovine semen. Demand for both by Chinese firms has already risen over the past ten years and is expected to strengthen in the future. Australian exports of bovine semen to China jumped from zero doses in 2013–14 to around 140,000 doses in 2017–18 (Figure 2). Despite a slowdown in China's demand for live breeder cattle imports in 2017–18, the trade in both bovine semen and breeder cattle is expected to remain an opportunity for Australia until such point as Chinese producers determine they have appropriate domestic breeding stock to meet and maintain their policy objectives.

Figure 2 Exports of bovine semen, Australia to China, 2008–09 to 2017–18



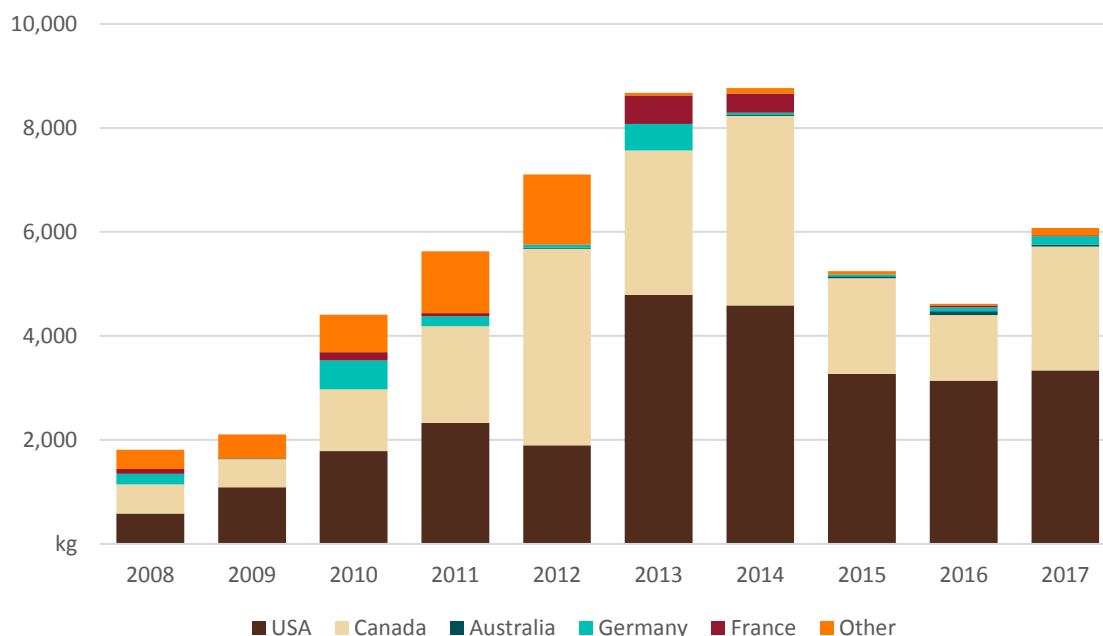
Note: Includes all bovine semen, including of dairy and beef cattle.

Source: ABS 2018

Supporting the development of improved genetic stock may appear counter to Australia's long-term interests. However, if China does not import Australian genetic stock, it will import from

other countries (Figure 3). Historically, China has imported the majority of its bovine semen from the United States and Canada. Consequently, it remains in Australia's interests to take advantage of what is potentially a short-term opportunity.

Figure 3 Bovine semen imports, China, by source, 2008 to 2017



Lower input costs present a downside risk to Chinese import demand

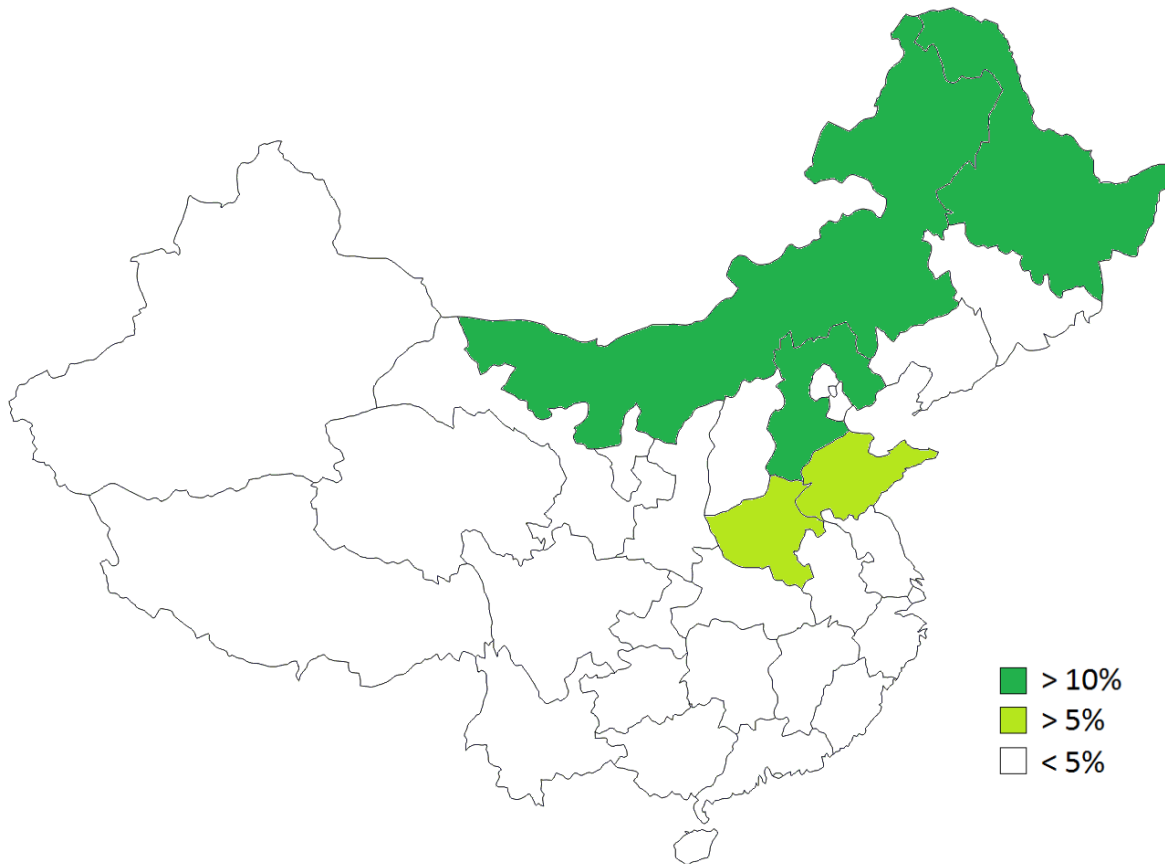
A number of policies in the 2017 *No. 1 Document* potentially reduce input costs for Chinese dairy producers and processors. These include feed grain price policies, corn consumption subsidies, vertical integration initiatives and a move to increase efficiency in the livestock products industries more broadly.

Corn minimum price

In 2016 the Chinese Government committed to removing the corn minimum price, allowing the corn price to be determined by market forces. This policy was continued in the 2017 *No. 1 Document* and the domestic price of corn has subsequently fallen (see Chapter 1).

Low corn prices only benefit the domestic dairy industry when transport costs are not prohibitive. That is, when corn and dairy are produced relatively close to each other. Two-thirds of China's milk production occurs in several north-eastern provinces where around half of China's corn is also produced (Map 1 and Map 3).

Map 3 Average share of national cow milk production by province, mainland China, 2012 to 2016



Source: NBS 2018

Lower feed grain prices improve farm profitability, which encourages re-investment in operations to increase milk production. Lower domestic feed grain prices can be expected to extend through the dairy supply chain, contributing to an expected increase in supply of Chinese dairy products.

Corn consumption subsidy

The 2017 *No. 1 Document* introduced corn consumption subsidies but does not clarify who will be eligible. If dairy farmers are eligible, the subsidies would provide further impetus to increase domestic milk supply.

Efficiency of livestock production

While increasing the efficiency of livestock product production is an aim of the 2017 *No. 1 Document*, specifics about how this will be achieved are not provided. Increased productivity would improve the profitability of the industry and create an incentive for higher production.

Summary of implications

The policies in the *No. 1 Document* and *Development Plan* have mixed influences on potential import demand for dairy products and livestock. However, a positive net effect on Australia's dairy exports is expected, largely because China's stated goals for its dairy industry will require more imports if they are to be achieved.

Policies to improve food safety in China are expected to stimulate consumer demand for domestically-produced products. However, an inadequate supply of domestically-produced milk powder to meet projected demand by the processing sector will present Australia with an export opportunity. Policies to improve dairy cow herd genetics are also expected to provide an opportunity for Australia, at least in the short term, as Chinese demand for bovine semen and live dairy cows strengthens. Despite lower feed grain prices for Chinese dairy farmers and expected improvements in efficiency that may increase local production, projected strong consumption growth for dairy products over the foreseeable future means that the prospects for Australian dairy exporters remain positive.

4 Agricultural cooperation opportunities

There are many opportunities for agricultural cooperation between Australia and China across the beef, dairy and grains industries. Based on the direction of China's agricultural policies and Australia's growth in trade with China, some potential areas for greater focus are identified below. These are consistent with the *Australia–China Agricultural Cooperation Agreement* objectives of promoting bilateral agricultural cooperation in agriculture, developing the trading relationship, and exchanging scientific information to enhance cooperation and develop linkages between the two countries (DAWR 2017). For dairy, agricultural cooperation opportunities are consistent with selected key tasks identified by China in its *Dairy Industry Development Plan 2016–2020*. For beef, the opportunities are consistent with the *National Beef and Sheep Meat Development and Promotion Plan 2013–2020*. Potential cooperation opportunities include:

- 1) advice on food safety and sanitary and phyto-sanitary (SPS) regulations
- 2) genetic research and herd transformation
- 3) disease control and prevention
- 4) sharing policy experience on dairy industry restructuring
- 5) research on grain varieties
- 6) sharing experience on grading grain.

1) Advice on food safety and SPS regulations: beef, dairy and grains

China is seeking to improve its food safety standards, which often relate to SPS regulations for beef, dairy and grains. Changes to China's SPS regulations could present an opportunity for Australia, whose SPS regulations are well established. Australia has the capacity to cooperatively engage with China to share its expertise on SPS reform so that outcomes benefit China, while at the same time not unfairly creating a disadvantage for Australian exporters.

2) Genetic research and herd transformation: beef and dairy

Improving livestock breeds is a policy objective that appears in both the *National Beef and Sheep Meat Development and Promotion Plan* and the 2017 *No. 1 Document*. An opportunity for cooperation exists between Australia and China to share technology and knowledge on genetic research, breeds and breeding. Australia is in a position to provide cooperative scientific and policy advice in this area from experience transforming beef cattle herd genetics. For example, since the 1970s the northern Australian cattle herd has undergone significant changes to ensure long term viability (Gleeson et al. 2012). Cooperation would support Australia's opportunities for exporting breeder cattle and bovine semen to China.

A key element of the *Development Plan for the Milk Industry 2016–2020* is the increase of China's milk yields by 25 per cent by 2020. This objective is consistent with the 2017 *No. 1 Document's* policy of revitalising China's dairy industry. After Australia's dairy industry was deregulated in 2000, milk yields increased by 4 per cent in the first five years and 19 per cent by 2016–17. An

opportunity exists for cooperation between Australia and China to share technology and expertise on dairy genetics.

3) Disease control and prevention: beef and dairy

The 2017 *No. 1 Document* sets out a policy of improving food safety, which stems from food scares over the past decade and consumers' rising awareness about the issue. Animal diseases, such as bovine spongiform encephalopathy (BSE) and foot and mouth disease (FMD), are two well-known livestock diseases that can compromise food safety (WHO 2015) and taint consumers' views about the domestic food supply. Specifically for dairy, China's *Dairy Industry Development Plan 2016–2020* has an objective of strengthening the prevention and control of dairy cow diseases, with specific mention of FMD, brucellosis and tuberculosis.

Australia is broadly regarded as having strong quarantine and disease control regulations. It is also free of all major livestock diseases. This expertise in animal disease management and prevention, and biosecurity governance, are areas in which Australia is well positioned to engage collaboratively with China. Australia would have the capacity to collaborate with China on ways to successfully implement biosecurity measures in a way that fosters the use of international markets, as per the *No. 1 Document*.

4) Policy experience in dairy industry restructuring

The state governments of Australia removed controls over the farm-gate pricing of market milk on 1 July 2000. The Commonwealth Government's domestic market support scheme also ended. The removal of these controls was accompanied by the Dairy Industry Adjustment Package, which included three programs:

- a) the Dairy Structural Adjustment Program
- b) the Dairy Exit Program, and
- c) the Dairy Regional Assistance Program.

Following these reforms, Australia's dairy industry changed significantly. Between 1999–2000 and 2004–05, the number of Australian dairy farms dropped by 29 per cent, milk production dropped by 7 per cent and the dairy cow herd contracted by 11 per cent. However, there was also a notable efficiency improvement, as milk yields rose by 4 per cent.

The Australian dairy industry has experience in adjusting to significant change while maintaining a commitment to trade liberalisation. Consequently, there is an opportunity for Australia to engage with China and share its policy experience from the dairy industry's transition, while China works towards its objectives.

Further information about the restructure and deregulation of Australia's dairy industry is available in ABARE (2001) and ACCC (2001).

5) Research on grain varieties

Different varieties of grain crops are suited to different environments and produce grain of different characteristics. Given Australia's highly variable climate, there is an opportunity for Australia to cooperate on research about drought-resistant traits in grain varieties. Such cooperation can assist China to achieve its policy of stabilising wheat and rice production. Likewise, research into varieties that are better suited to the Chinese environment provides an

opportunity for limiting the use of agricultural chemicals, consistent with China's existing policy of zero growth in agricultural chemical use (paragraph 9 of the *No. 1 Document*).

The varieties of grain crops planted influence the quality characteristics of the grain produced. Cooperative research on grain varieties and an understanding of the grain qualities consumers in China demand could enable China to develop varieties that allow it to achieve its policy objective of improving the quality of its food supply. Such joint research also informs Australia about Chinese consumers' preferences.

6) Sharing experience on grading grain

Greater understanding and dissemination of information about China's system of grain grading would allow market participants to make more informed choices, enhancing opportunities for trade. Australia has very well-documented and clear grain grading guidelines. Sharing experience on grading grain could assist China to achieve higher quality grain, consistent with its policy objectives. This would also inform the Chinese grains industry about Australia's grain grading system, which may assist China achieve its objective of utilising international markets.

5 Conclusion

Each year the Chinese Government releases the *No. 1 Document*, which contains policies for the year ahead. In 2017 the *No. 1 Document* focussed on agriculture and was significant because it emphasised structural reform of the Chinese agricultural sector. The broad direction of the policy changes was confirmed with the release of the 2018 *No. 1 Document*. Generalised qualitative inferences can be made about the economic impact of each year's *No. 1 Document's* policies. As China is the top export destination for Australian agriculture, the changes which first came to prominence in the 2017 *No. 1 Document* have significant implications for Australian agricultural exports and agricultural cooperation opportunities.

China recently made major structural adjustments to its grain market, including the reduction of corn stockpiles and market pricing of corn, which were continued in the 2017 *No. 1 Document*. Changes to the corn market reduced the price of corn in China, which affected prices of other grains such as barley and grain sorghum because of substitution between grains in livestock producers' feed mixes. Changes to the corn market have also caused producers to be potentially more aware or responsive to relative prices of alternative crops, such as wheat and soybeans, for which returns may be higher because of either a guaranteed minimum price (wheat) or special subsidies (soybeans). The document announced a policy to increase livestock production, which will lead to stronger demand for feed grains. The net effect of these reforms on import demand for Australia's grain exports is ambiguous because of the unknown extent that livestock producers may substitute one feed grain for another, or that grain producers may switch to higher-priced alternatives. Given this uncertainty, it will be important for Australia to build on its reputation as an exporter of high-quality agricultural products in order to maintain its position in China's feed grain market. Collaborative efforts in research and policy development would support China's other structural and institutional policies, including improving food quality and safety.

In beef and dairy, many of China's structural adjustment policies are aimed at increasing production and the scale of agricultural operations. Refining food quality and safety standards has also been identified as a priority and is likely to require significant institutional policy change. The implication of these policy directions for Australian agricultural trade policymakers and industry is that there should be an emphasis on the expanding markets for Australian livestock and livestock products, including feeder and breeder cattle, bovine semen, milk powders and high-quality beef. Major agricultural cooperation opportunities exist for developing food safety and SPS guidelines for livestock products (and grains) that allow the benefits from trade to be realised.

Obtaining a better understanding of the implications of the changed policy direction in China's 2017 *No. 1 Document* requires additional analysis. For example, the uncertain impact of China's structural adjustments on the volume of grain exported from Australia to China highlights the usefulness of modelling and other quantitative analysis. The same is true of beef and dairy. Even though the policy adjustments appear to support Australia's export opportunities, quantitative analysis could provide more detailed insights about the extent to which exports to China may increase. Deeper cooperation and collaborative opportunities with Chinese counterparts would also allow improved exchange of more detailed information on China's policies. This would

likely yield deeper and improved analysis of Chinese policies and associated opportunities given the broad descriptive nature of the *No. 1 Document*.

Projected growth in China's food demand presents a clear opportunity for Australia's agricultural exporters. However, benefiting from these opportunities will require the Australian agricultural sector to adjust to China's changing regulatory and policy framework. The structural and institutional policy adjustments announced in the 2017 *No. 1 Document* have the potential to alter the composition of Australia's agricultural exports to China, particularly relating to exports of feed grains, fresh and frozen meat, bovine genetic material and the mix of processed dairy and milk powder products. To ensure that Australia remains well placed to take advantage of the adjustments, a strong collaborative relationship with China will need to be maintained.

References

- ABARE 2001, The Australian Dairy Industry: Impact of an Open Market in Fluid Milk Supply, Australian Bureau of Agricultural and Resource Economics, Canberra.
- ABARES 2018, [Agricultural commodities: September quarter 2018](#), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
- ABS 2018, International Trade, Australia: August 2017 [unpublished data], cat. no. 5465.0, Australian Bureau of Statistics, Canberra, accessed 3 October 2018.
- ACCC 2001, [Impact of farmgate deregulation on the Australian milk industry: study of prices, costs and profits](#), Australian Competition and Consumer Commission, Canberra.
- CCCPC 2015, [The 13th five-year plan for economic and social development of the People's Republic of China 2016–2020](#), Central Committee of the Communist Party of China, Beijing.
- China Ministry of Agriculture 2017, [Market prices of livestock products and feed in the last week of November](#), Ministry of Agriculture of the People's Republic of China, Beijing, accessed December 2017.
- DAWR 2017, [Australia-China Agricultural Cooperation Agreement \(ACACA\) Programme](#), Department of Agriculture and Water Resources, Canberra, accessed 14 August 2017.
- FAO 2017, [FAOStat](#), Food and Agriculture Organization of the United Nations, Rome, accessed 7 December 2017.
- Fell 2018, 'China's grain policies—an update', in [Agricultural commodities: March quarter 2018](#), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
- Fell, J & Waring, A 2017, 'China's grain policies', in [Agricultural commodities: June quarter 2017](#), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
- Gleeson, T, Martin, P & Mifsud, C 2012, [Northern Australian beef industry: Assessment of risks and opportunities](#), ABARES report to client prepared for the Northern Australia Ministerial Forum, Canberra, May.
- Government of China 2017, [Development Plan for the Milk Industry](#), China Food and Drug Administration, Ministry of Agriculture, Ministry of Industry and Information Technology, Ministry of Commerce and National Development and Reform Commission, Beijing, accessed 24 August 2017.
- Government of China 2018, [Rural revitalisation strategic plan 2018–2022](#) (in Chinese), Central Committee of the Communist Party of China and State Council, Beijing.
- Hamshere, P, Sheng, Y, Moir, B, Syed, F & Gunning-Trant, C 2014, [What China wants: Analysis of China's food demand to 2050](#), ABARES conference paper 14.3, Canberra, March.
- IGC 2017, [Freight rates report CMC \(17/18\)FRT.23](#), International Grains Council, London.

IGC 2018, [IGC World Grains Statistics and News Database](#), International Grains Council, London, accessed 8 October 2018.

NBS 2018, [China Statistical Database](#), National Bureau of Statistics of China, Beijing, accessed 15 August 2017.

NDRC 2013, [National beef and sheep meat development and promotion plan](#), National Development and Reform Commission, Beijing, accessed 28 August 2017.

UN Statistics Division 2018, [UN Comtrade](#), New York, accessed 3 October 2018.

USDA, 2018, [Production, Supply and Distribution Online](#), Foreign Agricultural Service, US Department of Agriculture, Washington, DC, 9 September.

USDA–FAS 2016, [China—People's Republic of: livestock and products annual](#), GAIN report, no. CH16043, Foreign Agricultural Service, US Department of Agriculture, Washington, DC, 14 October.

USDA–FAS 2017, [China's annual agricultural policy goals: The 2017 No. 1 Document of the CCCPC and the State Council](#), GAIN report, no. CH17006, Foreign Agricultural Service, US Department of Agriculture, Washington, DC, 15 February.

USDA–FAS 2018, [China's annual agricultural policy goals: The 2018 No. 1 Document of the CCCPC and the State Council](#), GAIN report, no. CH18007, Foreign Agricultural Service, US Department of Agriculture, Washington, DC, 2 March.

Waldron, SA & Brown, CG 2014, 'Chinese and South-East Asian cattle production' in Beef Cattle Production and Trade, CSIRO Publishing, Victoria.

Whitnall, T 2017, 'Dairy', in [Agricultural commodities: June quarter 2017](#), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

WHO 2015, [Food safety fact sheet](#), World Health Organization, Geneva.