FOREWORD

*ANZ Research In-Depth* is a series of detailed research reports written by the economists and strategists in ANZ Research, the Bank’s economics, commodities and financial markets research team. The purpose of the series is to showcase key strategic issues arising from the rapid development of the economies and markets in the Asian time zone.

Our research team is focused on connecting ANZ’s clients with these insights while also sharing them with a diverse range of stakeholders in the business community, government and financial markets with an interest in the Asia-Pacific. This reflects ANZ’s outward-looking orientation as Australia and New Zealand’s international bank. We believe our unique presence in the region allows us to make a major contribution to the conversations on key issues relating to the region’s future.

‘Molehill to Mountain’ is the first report in this collection and addresses important issues in relation to the development of Northern Australia as a major agricultural producer. The report adds to ANZ’s Greener Pastures insight report and to the current debate concerning Australia’s role and the potential in expanding food production for the growing middle classes of Asia. As a starting point, we look at what on-farm investment returns could be for Australia’s largest agricultural sectors if they expanded in the north. The report is not designed to be all encompassing, focusing on grains and oilseeds and beef. ANZ has identified strong Asia-led growth in both markets.

Domestic food price trends in countries such as China may also mean investors from Asia hold the key to unlocking the potential in the region, providing much-needed financial capital for the build-out of infrastructure. Outside of Asia, emerging markets also provide an important historical lesson. Brazil’s ability to expand crop and cattle production in a region similar to Northern Australia illustrates how the road to success is a marathon, not a sprint.

For Australia, an understanding of the climate and available resources provides some initial scope as to the size of the opportunities available in Northern Australia. With water resources a key driver of new agricultural production, economists can begin to quantify the significance of any developments. Some early estimates suggest that water available for irrigation in the region could be only 15,000 gigalitres (GL) per annum (p.a.), or around four times the size of Victoria’s largest man-made storage – Dartmouth Dam.

Overall, the findings in this report illustrate that the successful development of Northern Australia is not assured – with commodity price volatility a major issue. Some sectors are more likely to be winners than others, with the northern cattle industry a potential key pillar in unlocking the region for further agricultural development. For an investor, the economics look decidedly better for enhancing the existing cattle industry in the north than for a new grain industry. The market for beef in the north is also quickly evolving, with two new abattoirs and the government’s recent announcement on new live cattle access to China only adding to the potential for Australian beef.

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AGRICULTURE & NORTHERN AUSTRALIA

Key Points

• Peak consumption in feed grain, soybeans and meat takes twice as long to occur as for steel and copper. This leaves a very long window where any investment into Northern Australian agricultural can be rewarded.

• Northern Australia has a vast tract of land available. However once the suitability of soil type, proximity to infrastructure (all-weather roads), water (proximity to a river or an underground aquifer), salinity and flooding risk is accounted for the area shrinks considerably.

• Across the Northern Australian region, an estimated 5–17 million hectares of land is deemed suitable. Taking the lower bounds, the development of 5mha of irrigated production would equate to an annual increase of just over 30 million tonnes of corn and soybeans or an additional AUD12bn in export revenue.

A history of ill-founded enthusiasm

Despite various bouts of enthusiasm over the past 100 years, the true potential of Northern Australian agriculture remains an enigma. While interest in the region first started with the early pioneers, both agricultural scientists and politicians alike have since extolled the potential for the region as the next agricultural frontier in Australia.

At face value, the story of Northern Australia as the next phase of agricultural development is compelling. Northern Australia receives some of the highest rainfall in the country and has three major river systems with large annual flows. The area also has a latitude similar to Brazil’s Cerrado region – one of largest frontiers developed for agriculture over the last 30 years. But Australia has been different – at least partly because the north represents one of the more difficult soil and weather environments in the world in which to establish agriculture. However, as Brazil’s experience has proven, most of these limitations are not insurmountable.

In recent years, the focus on agriculture in Northern Australia has been rekindled. With the passing of the peak phase in bulk commodity prices and the perception that the Australian mining boom has ended, agriculture is being viewed as next in line to benefit from the rising wealth in Asia. The debate is turning to how Australia can at least partly realise the strong food demand outlook from Asia.

Figure 1. China trade: meat & dairy

Animal Protein

Source: USDA, ANZ Research
Does soft commodity demand look similar to mining?
One of the bigger questions for agricultural investors is: will markets experience a ‘step change’ in demand
from China as occurred for bulk commodities in the 2000s? China’s recent switch to the role of a much larger
importer of food has sharpened this focus. Our analysis indicates that a range of consumption patterns exist
across hard and soft commodity markets – making the extrapolation of the hard commodity experience into
agriculture difficult.

As an economy develops, commodity consumption can fluctuate in terms of growth rates (slope), and when
peak consumption occurs. History shows commodity consumption or intensity is much more rapid early
on in the economic development for copper, iron ore and coking coal than for grain and oilseeds (Figure 2).
Growth in consumption for feed grains, protein meal and meat tends to be much more consistent and steady
regardless of the stage of economic development – a pattern more akin to a tortoise than a hare.

The benefit of more consistent but slower consumption growth in many agricultural markets is that the peak
in consumption (per capita) appears to occur much later in an economy’s development when compared
with steel and copper. Steel and copper consumption appear unique, being heavily tied to the initial period
of economic development when rapid urbanisation occurs and associated infrastructure is built. Also, as an
economy’s capital stock grows, steel and copper are accumulated in existing infrastructure and products,
which over time eventually leads to a drop-off in demand.

Conversely, peak consumption in feed grain, soybeans (meal) and meat takes twice as long to occur
– typically at USD40,000/capita. This is the tantalising aspect of agriculture in the decades ahead. On a per
capita basis, peak consumption is still 30–40 years away. Much of this opportunity in growth will arise from
the Asia region, with even some of the more advanced emerging markets (such as China and Thailand) still
needing to quadruple the size of their economies before consumption hits a plateau. This leaves a very long
window where any investment that increases Australia’s agricultural potential can be rewarded.

Figure 2. Global commodity intensity curves

Source: ANZ Research
Note: consumption per capita (vertical axis) not drawn to scale.
A vast area of land but…

Australia’s north could provide one mechanism for agricultural production to expand significantly over the coming decades. Northern Australia has 120 million hectares (mha) of land available, 60% of Brazil’s Cerrado region. Most of the soils across Northern Australia are ill-suited to arable crop production. Soils are typically shallow and less than 0.5 metres deep, gravelly and acidic.

Other considerations required when assessing the amount of area suitable for intensive cropping include: proximity to infrastructure (ports, all-weather roads); water (proximity to a river or an underground aquifer); salinity and flooding risk. These factors can quickly reduce the amount of identified soil suitable for cropping. For example, in the Flinders catchment, more than 8mha of land is classified as moderately suitable (class 3) for cropping and irrigation. However, deducting areas with a flood and secondary salinity risk and limiting the area to within five kilometres of a river, suitable cropping area is reduced by up to 75%.

Across the Northern Australian region, an estimated 5–17mha of land is deemed suitable (class 1 or 2 soil types). Taking the lower bounds, the development of 5mha of irrigated production would equate to an annual increase of just over 30 million tonnes (mt) of grain and oilseed production, or a 66% increase in output from Australia. Australia’s current summer and winter grain crop output is 45mt per year under normal rainfall conditions.

On our long-term price forecasts, this would equate to an additional AUD12bn in export revenue in today’s dollars. While this hypothetical forecast would be highly significant for the Australian agricultural sector, any such development and contribution to the Australian economy would still look small relative to some other commodity exports. By 2020, we forecast the value of additional coal and iron ore exports at AUD40bn, and an additional AUD54bn for LNG.

Figure 3. Potential value of Australian bulk commodity exports in 2020

Source: ANZ Research

This is an extract from ‘Molehill to Mountain’, the first of a new series of detailed research reports written by economists and strategists at ANZ Research. ‘Molehill to Mountain’ addresses important issues in relation to the development of Northern Australia as a major agricultural producer and is available to ANZ clients.
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