

Grains Demand & Consumption Trends in the Chinese, Indian and Durum Wheat Markets

**A guide for broad acre farmers to understand the markets in
order to match production to consumption**

A report for



by Leon Ryan

2009 Nuffield Scholar

October 2009



Nuffield Australia Project No 0908

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Foreword

For too long now, as farmers and researchers, we have spent a lot of our time trying to increase our productivity by the smallest of increments with the aim of increasing our profit margins. By the year 2050, the world's population is expected to reach nine billion people. As the world's wealth increases so will the amount of animals on the planet to feed our desire for meat protein. China, the world's largest population currently standing at 1.33 billion people, is expected to be surpassed by India's population, which currently is 1.13 billion, by the year 2035. China's population growth rate is expected to slow as it increases its GDP per capita but India's is expected to continue to increase at a higher rate and it will struggle to reach the same increase in GDP per capita as China. Between them they will account for almost a third of the world's consumers. As a farmer with a marketing background it is my desire to understand the potential for these countries to produce enough food to feed themselves, and discover where opportunities may arise for Australian broad acre farmers to supply sectors of the market that they cannot successfully do themselves.

In line with the idea of producing grains that will be in demand for the future I wanted to explore the potential on our farm for Durum wheat. In four of the past six years our farm has produced Durum wheat. Durum, once milled, produces semolina which is the key ingredient for the production of both pasta and couscous. Durum production in Western Australia has been quite small in comparison to our bread wheat varieties. Part of the reason for this is due to soil constraints and our available varieties, but a major contributing factor is due to the lack of any real domestic marketing interest in the State. I experienced frustration when we produced durum wheat in 2007 knowing this variety was in short supply throughout the world and was worth at the time of harvest \$600/Tn and more again in 2008 that was worth \$440/tn, and both harvests are still sitting in our silos on the farm as unmarketable durum wheat and look likely to be headed for the feed market. The lack of production from W.A. led to very little interest from the grain marketers, and for me, a desire to search for a market. Therefore the second part of my Nuffield I have taken a closer look at the Durum wheat market to determine whether it is a sustainable alternative crop.

Acknowledgments

Firstly I would like to acknowledge and thank my partner Clare for being understanding and patient while I travelled extensively over the past 12 months, and my parents for maintaining the farm amidst tough weather conditions.

Without the support of leading sponsors like GRDC for putting up some of the funds to achieve such a journey it would not be possible to undertake the research.

Thank you to Prof. Kadambot Siddique for introducing me to his contacts within China it definitely makes the task much easier.

Syngenta for assisting me with visiting farmers in both China and India.

My host universities and the professors that welcomed me and took time to show me around their facilities and their research throughout China, India and North Dakota.

Anirban Debb and the team at Austrade in New Delhi for helping me with everything from accommodation, to transport and assisting in setting up countless meetings with the right people in such a small time frame.

To the farmers in North Dakota and the NDSU for taking the time out during harvest to share their durum experiences.

To Jim Geltch and the Nuffield administration for organising a very professional Global Focus Trip and CSC.

Abbreviations

AWB	Australian Wheat Board
MSP	Minimum Support Price
PDS	Public Distribution Scheme
WA	Western Australia
NSDU	North Dakota State University
APW	Australian Premium White
AH	Australian Hard Wheat
ASW	Australian Soft Wheat
CBH	Cooperative Bulk Handling
Ha	Hectares
Tn	Tonnes
MMT	Million Metric Tonnes
USDA	United States Department of Agriculture

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Executive Summary

The aim of this report is to understand what export orientated Australian broad acre farmers should be growing in response to changing export market dynamics. Farmers need to understand the market signals coming out of the developing markets of China and India, which account for a third of the world's people and look for tell tale signs that may point to a swing in demand for certain agricultural commodities. The report also looks at the durum wheat industry and gives an opinion on what outcomes are likely for Australian farmers who are producing durum solely for export.

The report is a long term view into understanding the markets, what drives them and where our opportunities, as farmers, will be into the future. It will also act as a guide as to what our industry needs to be focusing on with respect to directing our research, or marketing our grains for the benefits of growers.

I spent many weeks interviewing university researchers, industry representatives, Australian trade officials, pasta manufacturers, durum millers, farmers, grain traders, governmental policy advisors, grain marketers and agricultural analysts in order to form a consensus opinion on what the world will be eating in future decades and how India and China will cope with the demands.

What I learnt was that as a commodity producer you can ride the roller coaster of market prices as a result of simple supply and demand but the admission rules will always be the same. A commodity producer needs to take part and produce at the lowest possible costs over the largest economy of scale that fits your machinery and labour availability. Be prepared, as the margin becomes unrealistic, to do the hardest thing of all which may be to drop a crop out of the mix. Farmers must be observant in this era of abundant available information and take the time to read market signals and adapt to the changes.

Our cooperatively owned grain handling and marketing groups need to be actively sourcing international partners to own the value chain from barley to malt to beer as the world consumes more alcohol through the Asia region or risk losing ground to the competition and exposing farmers to rival companies who are doing this. Our Industry partners and marketers also need to have representation in India for our pulse marketing and wheat sales previously

executed by AWB. There will be big opportunities from time to time in India and we need to be there on the ground maintaining the relationship for when they exist.

The good news for farmers is that we are growing a good mix of grains at the moment to supply into China and India. Our white winter wheat is the preferred choice of wheat for India. China is currently experiencing an increasing demand for edible oils like soy and hopefully this will lead to an increase in canola consumption as well. The Chinese market is the perfect market for our emerging GM canola production. There are big opportunities for our pulses to supply India. I think as farmers we can take more control over the way we market these through accumulation and tendering direct to the Indian procurement agencies, and not withstanding the added risks associated with international trade, this may allow farmers to increase margins and effectively market our pulses positively and collectively.

More people from India and China are experiencing higher incomes and with that they are demanding better sources of proteins by consuming more meat products. The greater the demand for meat, the greater the demand will be for feed grains to produce that meat and the higher the floor price that will be naturally set for wheat and barley. The general trend will be an increase not so much for Australian sheep and beef but more so for poultry and pork meat.

While the durum wheat industry looked very attractive in 2007 as a more price sensitive commodity with no substitute the reality is not so attractive. With more of the world looking at growing more durum and Australia producing surplus quantities for export, the durum industry, at least in Western Australia, looks unlikely to get off the ground without some better varieties and an additional 80 to 100 growers choosing to grow durum. However the intervention of an integrated Chinese port based durum mill and dried pasta production facility to supply the Asia pacific region could change this and has the potential for farmers to own some of the value chain if they follow the Dakota Growers Pasta Company's business model. The Australian market is too small and pasta is only one degree of separation from being a commodity, and hence is subject to the same rules of producing large volumes at the lowest cost. If those farmers throughout Australia who produce durum for export formed a cooperative and set up a facility in China, similar to what the Dakota Growers Pasta Co. did in the USA, with a fully integrated mill for the increasing convenience meal market then there is great potential. Australian farmers could supply their grain to the mill and own the value chain in what may become a large market.

Introduction

This report is aimed at giving an understanding of the world's two largest markets, China and India, how they are changing and what effect this will have on broad acre food producers back in Australia. It also takes on a Western Australian perspective in regard to the durum industry and evaluates the potential of durum as an alternative cereal crop.

Already one in five people are Chinese and one in six are Indian. Over the next forty years there is estimated to be almost three billion people in these two countries alone. Between them they will account for a third of the world's population.

It is therefore important for farmers and researchers to understand how the economies of these two countries are positioned, their food protection policies, their infrastructure, their wealth, and how their tastes are changing so that we can make sure we are growing the right mix of commodities and the right quality to supply them with what they require.

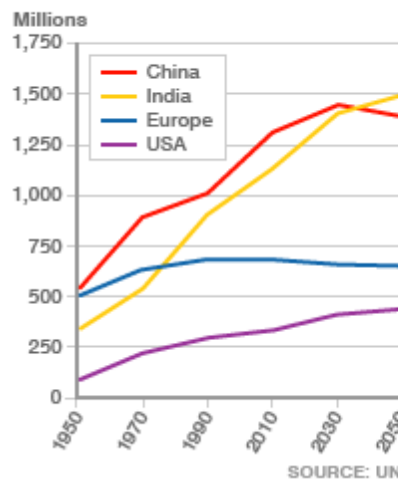
Durum wheat has the potential to be a good money earner alternative cereal but as a relatively new grower of durum (six years) I had a desire to investigate the long term sustainability of the crop, and as such, my research takes me from the Durum millers of Italy to the Durum farmers and pasta processors of North Dakota.

China

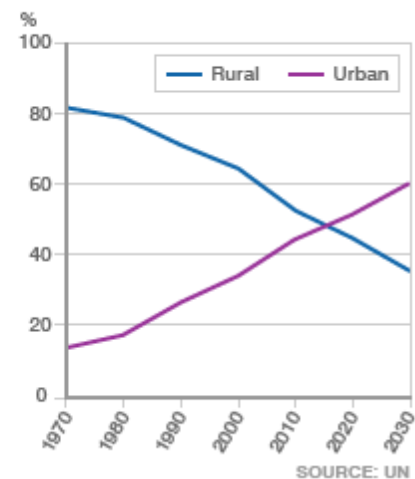
Understanding China the Market

With an estimated 1.33 billion people living in China during 2008, the Chinese people account for almost 20% of the world's population and with its rising wealth, cannot be underestimated as a market for Australian grains. China's population is approaching 1.45 billion people by the year 2035 and although the growth has been slowed somewhat by the one child policy that has been in effect since 1979, the rule is only enforced on ethnic Han Chinese and not applicable to people living in rural areas or people from ethnic minorities.

POPULATION GROWTH AND PROJECTIONS



RURAL AND URBAN POPULATION



The policy has been estimated to have reduced China's population by about 300 million people during its enforcement. China currently has a fertility rate of 1.7 births per female and a population that is growing older because people live longer. The world's current growth rate is 1.14%, representing a doubling time of 61 years (Matt Rosenberg, 2008). In the past 20 years there has been a doubling of the percentage of the population that lives in the cities to 40%. This is, in part, due to younger more educated people wanting a better way of life by obtaining higher incomes found in the urban areas that the rural areas don't provide.

The opportunities for Australian farmers on the whole will generally arise when China experiences a drop in their production of grains through either internal or external forces such as adverse weather, a change in the food security policy or civil unrest. At this point in time, and after visiting Universities and farm bureau's in Hangzhou, Wuhan, Lanzhou, Guangzhou, and the Guizhou Kailin group fertiliser plants in Guiyang, I do believe that China is in a position where it will be able to physically feed its population now and into the future. China is investing quite heavily in Agriculture as part of its food security policy. I have visited

Chinese PhD students working on GM foods from their own Glyphosate resistant Soy bean to modified grasses for fodder and met professors like Peiguo Guo that are trying to unlock the secrets to drought tolerant barley.

The Chinese middle class

It is estimated there is about 15% of the population or 200 million people that are within “middle class”. By the year 2020 that figure is expected to be closer to 500 million people. A 1% rise in this middle class represents 2 million more people demanding a better way of life and with that, more western lifestyles and that includes more meat consumption and more processed foods.

“In 2005, around 35 million urban households in China - about twenty percent of the total - had annual incomes ranging from USD\$6,000-USD\$25,000. By 2015, that number will nearly triple to 101 million households. At present, the middle class accounts for 27% of China's total urban disposable income. By 2015, that percentage is expected to rise to more than 40%. Considering its population, purchasing power, and trajectory, the Chinese middle class present marketing opportunities that companies cannot afford to miss.” (Song, et al., 2008)

In Shanghai, which can be seen as a pulse for modern China there is a change in the current attitudes of the newer generation. Society is very wealth hungry and there is a real desire to be seen as wealthy because this attaches a prestige to their image and it generates respect from their peers.

It is not uncommon to see many young Chinese ladies sporting luxury accessories and men driving around in luxury cars. In fact for a country that has only a 3% car ownership amongst its people I struggled to come to terms with the amount of luxury Audi's, Porsche and Mercedes motor vehicles I saw on the streets.

The Habits of the Chinese Consumer

The spending habits of the Chinese consumer are as a result of the history that the Chinese people have endured. With little or no public health system and no sophisticated retirement schemes like a pension or superannuation, and uncertainty about what may happen in the future, Chinese people have generally spent less of their earnings and retained up to 25% of their incomes for savings. Generally the Chinese consumer has only purchased items they have needed and only when they have the money to pay for it. As a result a lot of the rural Chinese population have very basic homes and food is the most important item on every day's agenda. The peasant farmers produce nearly all of their own food requirements and when they have a surplus (normally around 40% of production) it is generally traded.

China's Economic Issues and the Future

One of the biggest issues to hit China recently has been the Global Financial Crisis, or GFC. While this hasn't directly dented the growth rate, with their GDP increasing 7.2 % for the second quarter of 2009, China does have an investment strategy where it has money invested in developed overseas countries that is exposed to the GFC. Like most developing countries the majority of this investment has been within the USA.

China is currently the largest single holder of US Treasury Bills with the amount held recently passing \$2.2 Trillion, about a quarter of the US debt held by a foreign country, so when the GFC hit and the US dollar submerged then so did the value of China's holdings. China still however has nearly another \$2 trillion in its own reserves which is enough to fund the entire US budget deficit next year. The opportunity for China now rests with their ability to convert these reserves into hard blue chip assets by securing resources in foreign countries, as the rest of the world which ran up huge debts and now has to re-structure and invite these funds into their fold. The challenge however lies with complying with the foreign ownership legislation of the local host countries with which these targeted companies are listed and whether they accept new levels of foreign ownership.

The one thing China is restricted on is a good source of raw materials and with massive infrastructure projects happening in China at the moment that includes their appetite for iron ore. From the sky all you can see on the ground is huge rail and road infrastructure projects under construction. From the ground there are extensive city subways being built, new

CBD's taking shape and a cobweb of electricity networks. I would love to know how much concrete is poured in this country every year as I am sure it would be a third of the world's total consumption. It was stated recently in the *China Daily* newspaper that only 3% of people own cars in China and I dare say that will be greater than 10% within 5 years. Houses are now becoming more unaffordable for the urban dwellers and as a result mortgages consume the greatest part of their budget. The cities are ugly conglomerates of concrete with many planners either forgetting about including trees or simply they don't have the space. More to the point I don't think they can afford the space due to the strict laws governing land use and the minimum required "set aside" for farm land. This legislation is also affecting new road construction as most toll ways are now being raised above the ground to allow the peasants underneath to continue farming, resulting in a demand for even more steel and concrete and more greenhouse gas emissions.

There is also an insatiable thirst for the people to improve on their "quality of life" by being able to afford more "luxuries" that they have not been able to afford in the past. More than 85% of the young people I met were from a peasant farm and had no intention of returning to the farm. In fact many of these people were encouraged by their peasant parents to become more educated and now these people are Professors, PhD or Master's students. So China has gone through and still is going through an education revolution, so much so that in July 2009 only 68% of graduates had actually found jobs and the central government has had to employ a new program to get these people jobs.

Therefore when combining all these issues, I think the country is in a position where it is still going to need a large amount of natural resources to fuel the growth as it tries to future proof the road and rail as best it can by over-constructing now. The investment strategy is currently in education, innovation and in securing overseas natural resources and knowledgeable sources to fuel the growth. I think the future for China will then be to start investing heavily internally to become leaders with globally recognized brands that domestic consumers will be proud to purchase. It is currently already recruiting international experts in technical and management fields to help develop agricultural markets to the next level, such as with its Chinese Gooseberry(Kiwi fruit) production where it is aiming to be the world's biggest producer within 5 years.

The overall aim of the Chinese directors, I feel, is to increase the amount of GDP that comes from domestic consumption. Currently China's consumption contributes only 36% toward its GDP. Once China can raise the incomes of its people and the level of contribution from domestic spending up to 60% then I think we will see China slowly unwinding its reserves of US dollars and that may open up another whole can of worms for the US economy.

China's Farming Future

I see farming as going through a change. The population is getting older and the workforce will be declining. There is a current Government policy to get smaller farm dwellings demolished to free up land and then the farmers placed into newer, high rise compounds. The freed up land maintains the farmed area requirements.

The directors at the Farm Bureau believe that food security is the number one priority of the central government and will remain so into the future, however, the landscape may change a little as there may be more regionalization of foods grown. The areas in the North West are increasing their production areas in irrigation as in some cases outside of Lanzhou where water was being lifted 330 meters for irrigation. The yields and quality of grains will be lifted as research improves. The use of GMO's in food may still be a little way off as consumers are very concerned about the long term affects. All that is consumed at the moment is in edible oils. There may need to be the encouragement of poor producing farmers to lease their farms out to more productive producers and re-skilling them to work in the factories.

In 2004, the central government also initiated a new program to make direct payments to growers and eliminate agricultural farmers from paying taxes.

The Chinese Consumer

To understand what drives consumer demands we must first understand aspects of the Chinese economy. As mentioned earlier China's private consumption only accounts for 36% of its GDP compared to 70% in the USA and about 60% in Australia and has a huge potential to grow that domestic consumption. Furthermore, at the end of May 2009 Chinese families had at their disposal bank deposits totalling 25 trillion Yuan or A\$4.3 trillion so they have the potential to grow domestic consumption but the question remains as to how evenly those savings are distributed amongst the people. The reason for this figure is that the Chinese have traditionally saved about 25% of their earnings. Another point worth noting is that China is currently the 5th biggest consumer market in the world.

The Chinese government stimulus package is valued at US\$586 billion and most of this is directed at infrastructure improvements. The concern though, is whether consumer spending is occurring at the desired rate. "Spending by Chinese households as a percentage of GDP is roughly half the US consumption ratio and remains significantly below private spending levels in Europe and Japan. And despite rising sales of items such as automobiles and household appliances, the ratio of private spending to GDP in China today has actually fallen relative to Chinese spending levels of a decade ago." (McKinsey & Co, 2009)

To understand the trends of Chinese consumers we need to know about them in more detail. The China Business Weekly (July 20-26 2009, p2) states that consumers are becoming more cautious, selective and price sensitive at the moment which has been driven by lower than expected income growth this year rather than the anxiety caused by the economic outlook. It goes further to say consumer spending patterns vary by product sectors and that there is a strong demand for fresh food categories – fresh milk, vegetables, meat and milk – driven by the growing trend of healthier living concerns together with concerns over food safety.

The consumer is not too concerned about the current economic situation and the way Chinese consume will not be affected by it to any great extent. The Chinese consumer is very concerned with "face". There is a lot of importance being placed on looking wealthy and keeping up with modern trends even if it may not be the case. For example I have never seen such a concentration of luxury Audi cars driven through the cities and ladies accompanied with Gucci and Prada accessories. They place a lot of value on brands when making

purchases. Therefore to make it in the top end of the consumer market there must be some good marketing of the brand image to portray the product to be of high value. In agriculture that means you need to hit the top quality end of the market because the market place is too crowded for the mediocre price war fighting section of the marketplace. Unlike India, the consumers do place a value on quality and are willing to pay a premium.

Due to the sheer size of the population people can “make it big” in China in as little as five years. The young adults both work and work quite late hours in order to be able to afford their own house. This presents both an issue and an opportunity as it means the children are being bought up by the grandparents from a very early stage in life. Patrick Watene, of Global Horticulture coins these children the “little emperors” because they are being spoilt by the grandparents and they are an only child in most cases. He estimates that 90% of children under 2 are bought up by the grandparents. Once the children reach the age of 2 they can start to go to a “day care” type of school but are then picked up after day care by the grandparents again until the parents get home from work. These children are being taken to fast food chains like KFC and Pizza Hut. This trend for food production means that there is going to be more and more opportunities for food processors to make convenience meals. The trend is also for people to eat out a lot because it is so cheap and easy that it is difficult to justify cooking at home.

Chinese Banquet's – A way of life

During my time in China, because I was hosted by University officials a lot of the time, I was exposed nearly every day to the banquet feast. The feast is very important at times of welcoming new guests or closing business deals to name just a few. A big part of that is the challenge of “Ganbei” where someone proposes a toast and everyone at the table will finish their drinks to the bottom of the glass. This is done with either beer or “baiju” which is a distilled sorghum based drink (not much dissimilar to kerosene). The interesting part of this is that it is very popular amongst public officials. So popular in fact, that on average officials spend about US\$73 billion every year of public funds on banquets. (Chinadaily, 2009) This figure is almost a third of what the nation spends in a whole year in dining out.

China's Agricultural Production

China's total agricultural land is 120 million hectares. On average there is about 4 people per farming family and the average planting per farming family is between 0.4 and 0.5 hectares. Agriculture still employs 50% of China's population. The regions of Shandong and Henan, where wheat is produced, are the two leading provinces and account for almost 17% of the total primary industry GDP according to the Agricultural yearbook, 2007.

China currently has a food security policy which states that production of staple foods being rice and wheat must occur and has inducements to encourage this. The price for wheat and rice is protected to ensure adequate production levels.

Most of China's wheat production is in the North China Plain in the central and eastern part of the nation in three provinces being Henan, Shandong and Hebei which produce more than 50 percent of the national crop. These areas are susceptible to drought and are dependent on irrigation to cultivate wheat, a dependence that has contributed to the depletion of water resources in that region.

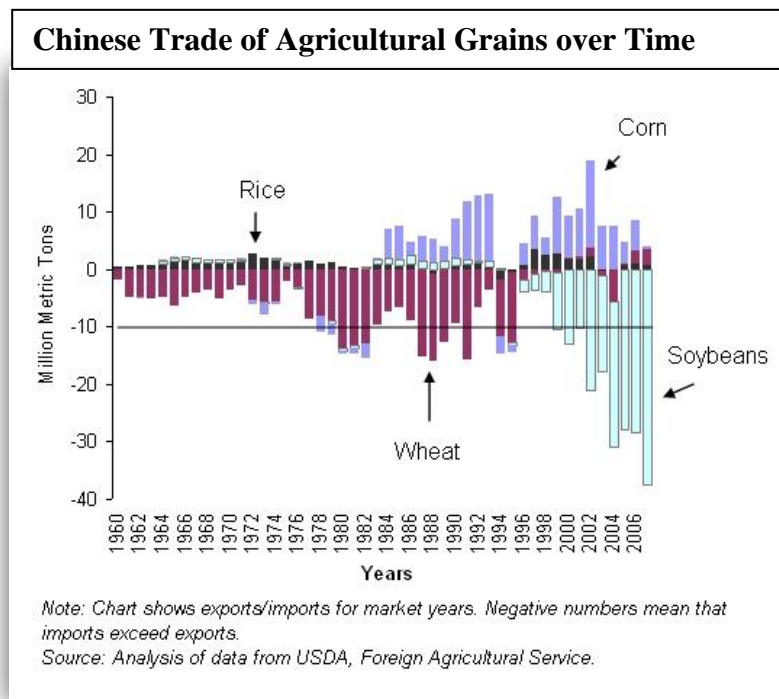
China's rice production increased in 2009 for the sixth straight year to 135.1 MMT from 29.8 million hectares, bought about by generous government input subsidies and higher procurement prices (4.53 tn/ha) which is 30% of world rice production.

China's wheat production looks like being 113.5 MMT from 24.2 million hectares for 2009, which is an average of 4.69 tn/ha. This equates to 17.2% of world production.

China produces only 2.8 million tonne of barley. By comparison Australia produces 7.5 million tonne. Perhaps this is because they produce a mere 3.93 tn/ha which is low in comparison to other production yields. China imports about 1.2 MMT annually and Australia this year has been a major supplier. China's total grain production for 09/10 is estimated to be about 417 MMT.

More relevant is the figure below from the USDA that shows China's imports and exports of grains and soybeans.

As you can see China has been relatively self sufficient in wheat, however if it does have a short production year there is potential for China to import up to almost seven million tonnes as it did in 2004/05. However it must be noted that with a large domestic crop this season China will have substantial reserves that it would have purchased in previous years.



With respect to inputs that go into the food production, China produces enough nitrogen and phosphorus based fertilisers to keep up with requirements, and because most of the manufactures are government owned, they are able to manage the costs of these products to domestic farmers. Potash on the other hand is predominantly imported even though they do have some domestic supply. According to China's 2008 statistical year book, applications of 406kg/ha of Nitrogen, 137kg/ha phosphorus and 94 kg/ha of potassium were applied over its 56.5 million hectares of irrigated agriculture. Remember that this land would be cropped twice in a year.

Water is not a large issue for the majority of China's agricultural production. With access to the Himalayan mountains, a very active monsoon that can drop so much rain that they measure it by the meter and three major river networks being the Pearl, Yangtze and Yellow rivers supplying water to a vast area of inland China farmers are not concerned with water supply. Water quality conversely may become a bigger issue as industry is often caught out polluting streams due to a lack of safety measures and enforcement. This recently occurred in Luyang township of Hunan when a cadmium plant that produces LCD screens was contaminating a local water supply that resulted in at least 5 deaths and numerous crops being contaminated.

Meat Production & consumption

China consumes mostly pork, chicken and eggs as its main sources of non grain proteins. As the Chinese farmer is looking for the best conversion on the amount of feed he supplies to produce animal proteins, he can achieve this with poultry (2:1) and pork (3:1). It also explains the sudden increase in soybean imports into China. Beef and mutton are the most expensive meats in China, generally fetching double the price of white meat. Beef is still seen in some parts as a working animal and not a preferred meat. The costs will prohibit it becoming a significant meat of consumption however as generational changes filter down and fast food restaurants selling hamburgers and steakhouses increase in popularity, coupled with increasing incomes and the sheer size of the population, we may see an increase in consumption of red meats.

The Chinese rarely eat steak, lamb and chicken the way we do. Most of their meals include a soup base and are “stir-fry” like dishes with rice. The amount of meat that is served with a meal is quite small, even when you order a lamb or beef soup, there is very little meat. At one meal I ate a Chinese version of a “rack” of mutton but there was no eye meat which left me begging the question where did it go? Chicken breasts are also very rarely seen and the locals tell me that they don’t like the texture or the taste and much prefer the meat and bones that sits right on the spine of the chicken and the same with the mutton ribs. From my cultural background experiences it was as if I was eating the left over food of a BBQ that people normally wouldn’t eat.

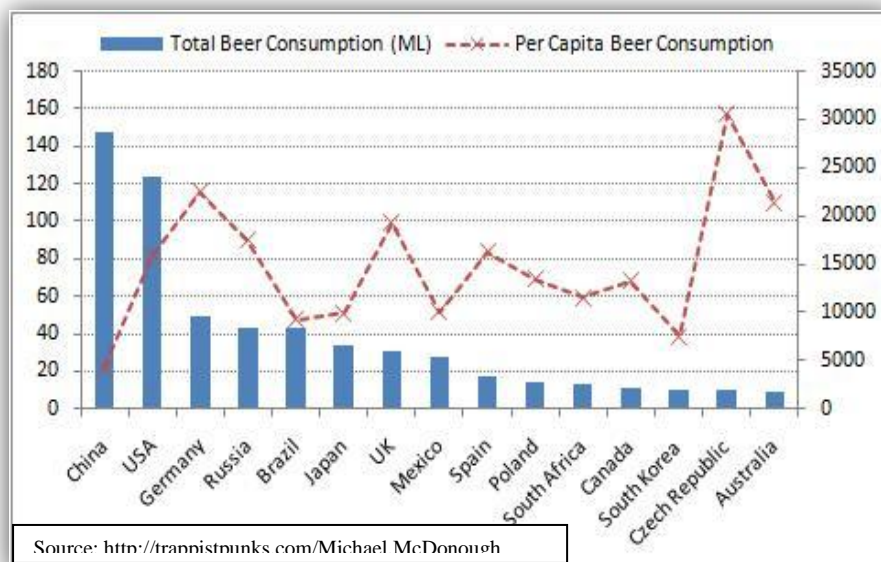
One point worth noting is that a Chinese person told me, was that they would pay as much for the bone of a chicken as they do for the meat. In fact as you can see from these images the whole chicken will go into the dish to be cooked. The chicken's feet are removed and often eaten deep fried. Mine on this occasion went in with the soup.



Opportunities for Australian Farmers

From my time in China there were two obvious production opportunities for Australian broad acre farmers in China. With the Chinese having a social background of drinking alcohol and making it a part of their celebrations there is the likelihood that consumption of beer will increase as incomes increase, and possibly so will the quality of beer consumed. Currently the Chinese only consume about 22 litres per person. If that rises to the levels of South Korea or Japan as wealth rises, then they are effectively almost doubling the market for beer. Currently the beer brand Snow is the world's largest volume producer of beer. According to the China Daily, China's beer consumption grew 6% year on year to 20.51 billion litres in the first half of 2009, paving the way for the country to be the world's biggest beer producer and consumer for the 8th consecutive year.

Currently the only thing that will stop the increase is that many Chinese cannot break down alcohol very well and they are quite small people so they physically can't drink as much. Furthermore, they still like to hold "face" in public and getting drunk



goes against this. So in Australia as farmers and breeders we need to grow malting barley varieties that suit the Chinese maltsters and breweries.

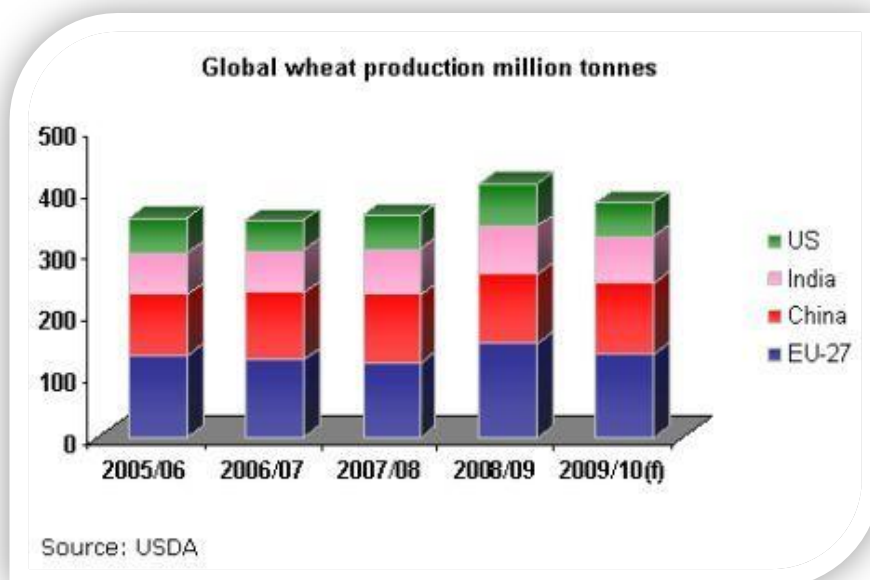
Australia is close to China and we can produce good quality malt barley. It must be noted that we already supply China a large quantity of malt barley. According to Wallace Chang, CBH's Regional marketing manager, Australia had supplied half a million tonnes of malt barley to China (50% of the total barley imports) till June this year and Western Australia has supplied one third of its total barley import requirements with our biggest competition coming from France and Canada.

Wheat

China is the world's largest individual producer of wheat, accounting for almost 20% of global production. "China and India are expected to increase their ending stocks of wheat, in particular China, their ending stocks are forecast to surge by 23% to 59.7 million tonnes in the forthcoming marketing season, due to China's production increasing by 4% to 113.5 million tonnes and consumption falling by 5% to 101 million tonnes" (Duggan, 2009)

The problem with this is that China may become a net exporter of wheat which may compete directly with Australian wheat on the open market or it may choose to maintain the grain for stock as a food security measure.

Even though China was well on its way to a record wheat harvest they still imported 200,000 tonnes of wheat for the first half of 2009, 50% of its total wheat imports for the period.



Of China's flour end-products, 45% is made into flour, 32% into steamed products, 10% into biscuits, cakes and snacks and 8% into pan bread leaving 5% for other products. While we produce ASW wheat suitable for biscuits, our higher protein wheat varieties are very suitable for milling and this is most likely what China will import if it cannot get a good enough quality from within. For 2009 Australian wheat accounted for just over a third of China's wheat imports.

Whilst during the seven years leading up to 2006/07 domestic production was not keeping up with consumption, China was able to draw down on its extensive grain stocks to meet demand. During 2004/05 China's wheat reserves were dropping to near 40 million tonnes or 40% of annual consumption, production had dropped for the fourth consecutive year and we saw China import almost seven million tonnes of which Australia supplied almost two million tonnes. For this reason we cannot totally rule out China as being able to supply enough wheat domestically all the time and maintain their minimum stock reserve levels. Should the Chinese people change their preference of bread types away from steamed breads to pan breads then that will also alter the dynamics and increase the demand for our APW and AH types of wheat.



During the beginning of 2009 news filtered through of a drought starting to hit China's wheat growing area and I was beginning to think that we had an opportunity to sell them more wheat. However once visiting the rural landscape I realised how easy it was in some places to cure the problem. In this case, as the photos show for cotton the government simply had to run electricity to the fields and supply the farmers with a pump and they would do the rest. The water in this case was only metres deep.

The Chinese Wheat Outlook

The overall outlook for exporting wheat into China in any great volumes in the next three years will be quite slim, however a steady few hundred thousand tonnes to a million tonnes will continue through for specific requirements.

Opportunities for non-broad acre Agricultural produce

Just briefly, whilst I was specifically looking at broad acre crops I did notice a few other agricultural opportunities that were presenting themselves that I thought were worthy of mentioning in the report.

Poultry

As China's wealth increases so will its consumption of poultry. Even though many peasants have their own sources of poultry on a small scale, I believe that there would be opportunities for modern, food safety orientated, large scale poultry production sheds. I also believe that there would be an opportunity for feedstock producers to produce "finishing pellets" as has been done in the pork industry. The emphasis would have to be on food safe, environmentally conscious production based within China.

Dairy

Although it has suffered a melamine disaster and prompted the government to enact its first Food Safety Policy, the dairy industry in China still presents opportunities. The key to this industry is that you need the same philosophy that works in New Zealand and Australia. That is, you are still a bulk commodity producer and you need to be highly mechanised with the ability to produce as many litres/kilos as you can. Even though you are producing a product that will receive increasing demand there are few barriers to enter into the industry meaning you can be replicated quite easily. Whilst China has a huge potential consumer market, like most things on that scale, the margins will be small as you will be orientated by moving volumes of milk product.

Premium Wines

This market will take time to develop on a mass scale. Not many consumers are sophisticated enough yet to appreciate what a good bottle of wine tastes like. Countless times I saw Chinese people drinking wine and mixing it with a cola beverage because they didn't like the taste. This will be a generational change that will require educating the consumers through expensive advertising. There is a market however within the larger modern cities that have a lot of foreign travellers and business people living there or passing through. I think to be successful in this industry it will depend on brand image and brand recognition. I think while maintaining a vineyard in Australia you will also need to set one up in China, maybe even under a different name to start with to see how the grapes produce. The potential upside could be huge but I think the costs of growing in Australia and exporting by the bottle would make it cost prohibitive. Once again, as for the dairy, the equipment would want to be modern and not relying heavily on the cheap labour in production. I think the target is for sweeter white wines but that would depend on the region you would target to set up your factory.

Premium Beer

China is the biggest volume consumer of beer by country and while I did notice Coopers beer in my hotel in Shanghai the market is dominated by locally produced cheap beers. However, I think this will be an emerging market as people increase their income and wish to be seen as wealthier by drinking a premium beverage.

Industry Opportunities

Now that ABB has been sold to Canadian company Vittera and Graincorp has acquired United Malt Holdings , it would be good to see CBH, look into producing its own malting barley grown from WA grain as a synergistic extension of adding value to WA growers. Further feasibility studies would be required but I believe that we have missed the boat in forming a joint venture with a current Chinese maltster so CBH should look into establishing a barley malting facility at one of the Eastern Ports in China. The Asian market is huge and will only get bigger with time. Should China end up consuming the same volume of beer per capita of its neighbours then there is no reason why this market cannot increase between 50 to 100 percent of 2009 levels. It will also be well positioned to supply countries like India with much needed consistent quality malt barley to help its breweries improve their production of beer. There may even be an opportunity to fully vertically integrate and form a joint venture with a large Australian brewery with good brand recognition like Foster's or even a smaller brewer like Coopers for example to own the supply chain through to the consumer.

Should CBH not be interested in the option then perhaps growers themselves may need to explore the opportunity and the different methods of capital raising and joint ventures that may be required to be successful.

India

The Indian Market

The Indian market, like China, is a developing market with a lot of opportunity, due in part to its large population base and the rapid growth experienced in recent years. India, like China, is also a large world producer of wheat and rice, however that is where the similarities end.

India prides itself on being the world's largest democracy and I must say that I think that this is also its biggest downfall in terms of realising its full potential. India is a long way behind China when it comes to infrastructure. The road and rail network needs a lot of work to become anywhere near as efficient as those in Australia or China. The electricity network is also over utilised with daily rolling black outs as a result of a lack of foresight in planning and questionable governmental policy that allows farmers free use of electricity to pump free water from ever increasing depths underground, as is the case in Punjab.

To give you some idea, while staying in New Delhi, the nation's capital, I was in a meeting during the summer heat in AWB's office and the electricity shut down for two hours, resulting in a backup generator powering up. This is an everyday occurrence, and in the case of AWB's office they were experiencing a problem with the generator so for two hours of the day they had only the short life of their laptop batteries to get them by but the working conditions were 38 degrees Celsius and 100% humidity during the height of monsoon season. How can any company expect productivity out of its office in these conditions? It made me think how expensive and complicated life would be for a company attempting to operate a cold storage facility given the current conditions.

India's Statistics

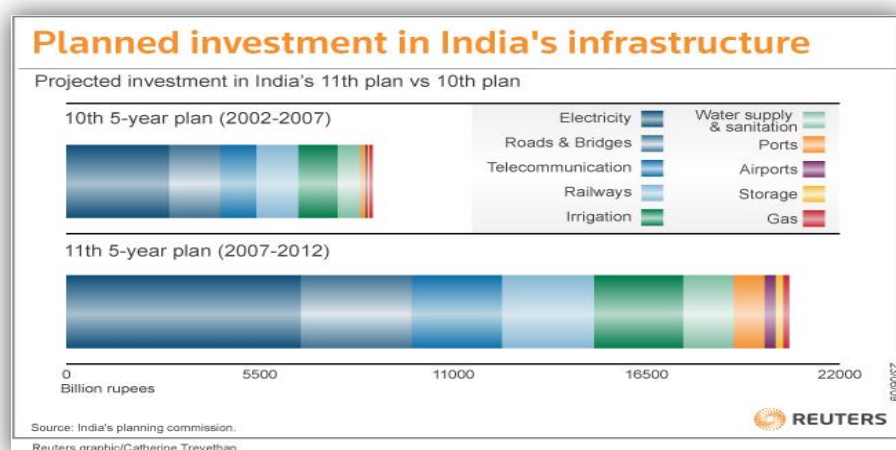
India's income per capita is only US\$ 950 and their total GDP for 2007 was \$1,176.89 billion, which in comparison to China is just over one third of its GDP. The life expectancy of an Indian is only 65 which is also 10 years younger than Chinese. This would have to be attributed to its large population mass that is living in poverty. Current estimates put this figure at 350 million people that are food insecure, consuming less than 80% of the minimum

energy requirements. Nearly 50% of the world's hungry people live in India. Agriculture accounts for only 17-18% of its GDP even though it employs 50% of the population. This figure has been slowly decreasing over time.

Improving Infrastructure

Because of the amount of “red tape” that must be endured to get infrastructure projects started and finished quite often the designated money never makes it to where it should rightfully go and the projects go over time and over budget. As indicated by the chart below, the country is trying to remedy the situation however many locals feel that it still lacks the desired amount of future proofing and once complete the projects may still be inadequate.

Source: (Reuters graphic/ Catherine Trevethan, 2009)



Another well known issue that hinders India's full potential is the "leakage"—India's euphemism for corruption. It was mentioned that nearly all sectors of officialdom are riddled with graft, from neighbourhood police to district bureaucrats to state ministers. Indian truckers pay about \$5 billion a year in bribes, according to the watchdog group Transparency International. Corruption delays infrastructure projects and raises costs for those that move ahead.

India's Agricultural Production

The current estimate for cereal production in India is stated below

- Rice Production for this year is currently 99.5 million tonne
- Wheat production is estimated to be around 78.4 million tonne
- Pulse Production is estimated to be about 14 to 15 million tonne

India's current agricultural production is best described by Bajaj as "Hobbled by small farm sizes, an intense reliance on fickle monsoon rains and extensive governmental control, Indian farmers are less productive and more vulnerable than their peers in other developing countries such as Brazil and China" (Bajaj, 2009)

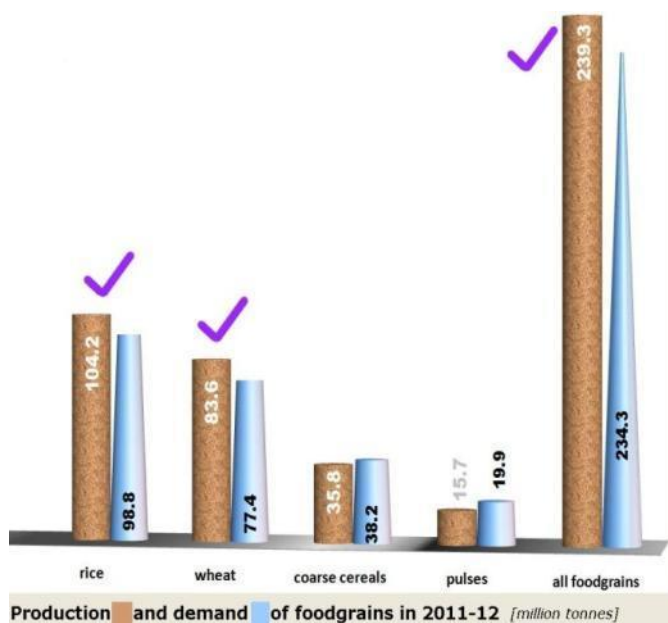
To give some indication of production history the table below shows the average for the three seasons up to and including 2006/07. As you can see pulse yields are very low and therefore less attractive for farmers to grow.

India: Area, yield, and production of major crops (2004/05-2006/07 average)

Crop	Area	Yield	Production
	Million hectares	Metric tons per hectare	Million metric tons
Cereals	98.9	1.91	194.1
Rice	43.1	2.07	89.2
Wheat	27.0	2.63	71.0
Coarse grains	28.9	1.18	33.9
Pulses	22.8	0.60	13.6
Oilseeds	27.2	0.93	25.4
Cotton	8.9	0.37	3.3
Sugarcane	4.3	67.47	287.9
(Source: Government of India, Economic Survey)			

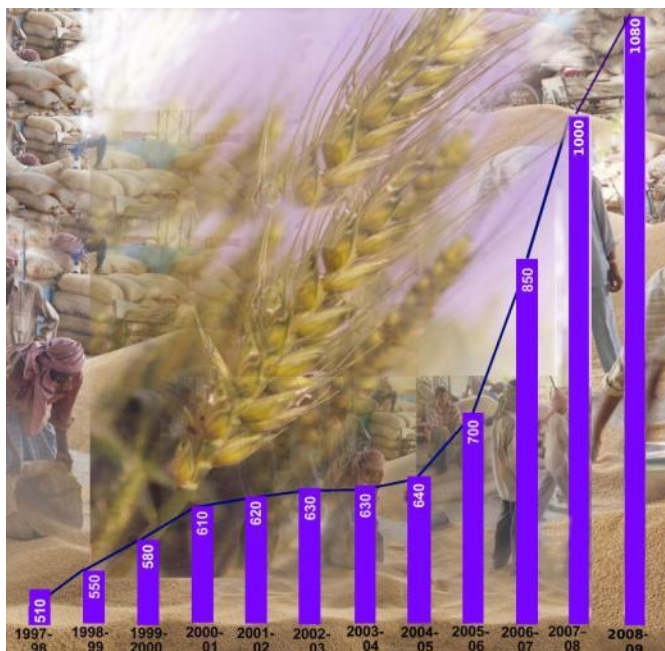
Even more so though it shows the volatility that can exist from year to year when comparing how well this season's crops have performed compared to the past and the bearish result this

would have for Australia's export potential of wheat into India for the 2010/11 season. Pulses on the other hand represent a much larger opportunity, as is shown by the graph below.



(Source: Press Information Bureau, Govt of India)

The Increasing Minimum Support Price of Wheat over Time



(Source: Press Information Bureau, Govt of India)

The chart on the left of the page shows the extent that India has gone to in order to secure wheat production. The current Minimum Support Price (MSP) is now 1080 Rs. The 2008/09 price is the equivalent of A\$265 per tn. The problem now for Indian officials is that it will be very difficult to reduce the minimum support price for wheat due to the volume of farmers that have the potential to vote them out of power. .

Punjab, India's Food bowl

During my trip I focused predominately on the Punjab state as this is the most productive land in India. Forty two percent of the country's rice and fifty five percent of its wheat is grown here. In this state 97% of the wheat is irrigated. Farmers in this state are some of the wealthiest in India and are still making good money from a wheat and rice rotation. For both wheat and rice India employs a MSP that encourages growers to grow the staples by artificially inflating the price which then generates the most profit for farmers. According to the Punjab State Farmer's Commission (Feb 2007), the average gross income per farm household was A\$7,173 during 2005-06, with crop income of \$A5,201(74.1%). Furthermore the fertilisers used are at a heavily subsidised price to encourage maximum production. This short sighted approach only fosters unsustainable inefficient farming practices. For example the price of Urea is currently \$120 per tonne as shown in this photo which I found while visiting a store in Punjab.



In the Punjab area farmers are highly mechanised and there is one tractor owned for every 10 Ha of farm land or every second farmer. They also employ a minimum tillage seeder for wheat called a Happy Seeder. For the total year under a wheat rice rotation the farmers can produce 10 tonnes per hectare per year utilising a 200% cropping intensity. This region has 4.2 million hectares (2.6% of India's cropped land) under crop and contributes 42% of the country's rice, 55% of its wheat and 24% of its cotton. There is a tube well pumping water from the ground for every 3.4 hectares. The reason being that unlike Australia where we try to divide farm assets up in a sustainable manner for the next generation, in India inheritance rules dictate the land is split evenly regardless of sustainability. So gradually farm sizes are becoming smaller and smaller and as each individual sets up his farm they will put in their own tube well and build their own home, in effect reducing the arable land even further and increasing farmer debt levels. After all, the water and electricity are free in Punjab. This in turn overloads the electricity grid resulting in the rolling blackouts. It has also contributed to this food bowl of India experiencing a rapidly decreasing water table at 300ml per year. The Indian government has been able to stabilise this depletion by restricting the planting date of rice to not before the 15th of June, which minimises the losses to evaporation.

During my time in India it seemed that anything and everything is affected by non-market forces. Fertiliser is heavily subsidised (Urea at A\$120/tn) If a farmer buys a tractor he is subsidised, when he sells his grain, the government is the major purchaser and sets a minimum support price that the farmer will receive of A\$270/tn but in contrast the government has to feed its 350 million starving people so it has a Public Distribution Scheme (PDS) where the poor can get access to cheaply subsidised food. The irony being that the poor are mostly the farmers or farm workers that help produce the food. Therefore I feel that “The world’s biggest democracy” has created one of the world’s most inefficient markets.

The Market place (The Mandi)

There are two main crops that form part of the government’s food security plan. They are wheat and rice. The wheat and rice have a MSP and form the majority of the Public Distribution System, which services subsidised food to the poor. Currently the market operates by the farmer selling his wheat or rice either directly to the government from the farm or by the local market or “Mandi” In the case of the Mandi a farmer brings his produce to market, he consigns a commission agent to sell his produce on his behalf. The commission agent then either sells to either a government purchaser or a processor, the purchaser then has to have the produce bagged and stored in a warehouse or transported. The farmer has to pay a fee for using the Mandi service, generally about 2.2% and a fee to the commission agent of about 1.6%.



Due to the farmer having this relationship with his commission agent, when a farmer needs financial assistance he will seek it from the agent. This is generally to pay for fertiliser and herbicides for the crop during the year. The catch is that the farmer is then locked into selling his grain through the same commission agent once it is harvested, limiting the farmer’s options for selling strategies. Once the farmer is in this situation it is generally hard for him to break out of it.

The Minimum Support Price system (MSP)

The Indian Government introduced the minimum support price system in the 1960's to encourage the production of staple foods and provide farmers with reasonable incentives and stabilise their incomes. It is essentially a floor price that the government sets in an effort to stabilize farmer's incomes. The aim is to help the farmers cover their actual costs of production including the cost of capital and labour. There is a commission on Agricultural Costs and Prices that recommends the MSP for each season which is then announced before harvesting commences. Currently only wheat and rice are fully covered under the MSP. Pulses are not covered, I assume due to the risks of production, which I find surprising considering half of the population is vegetarian.

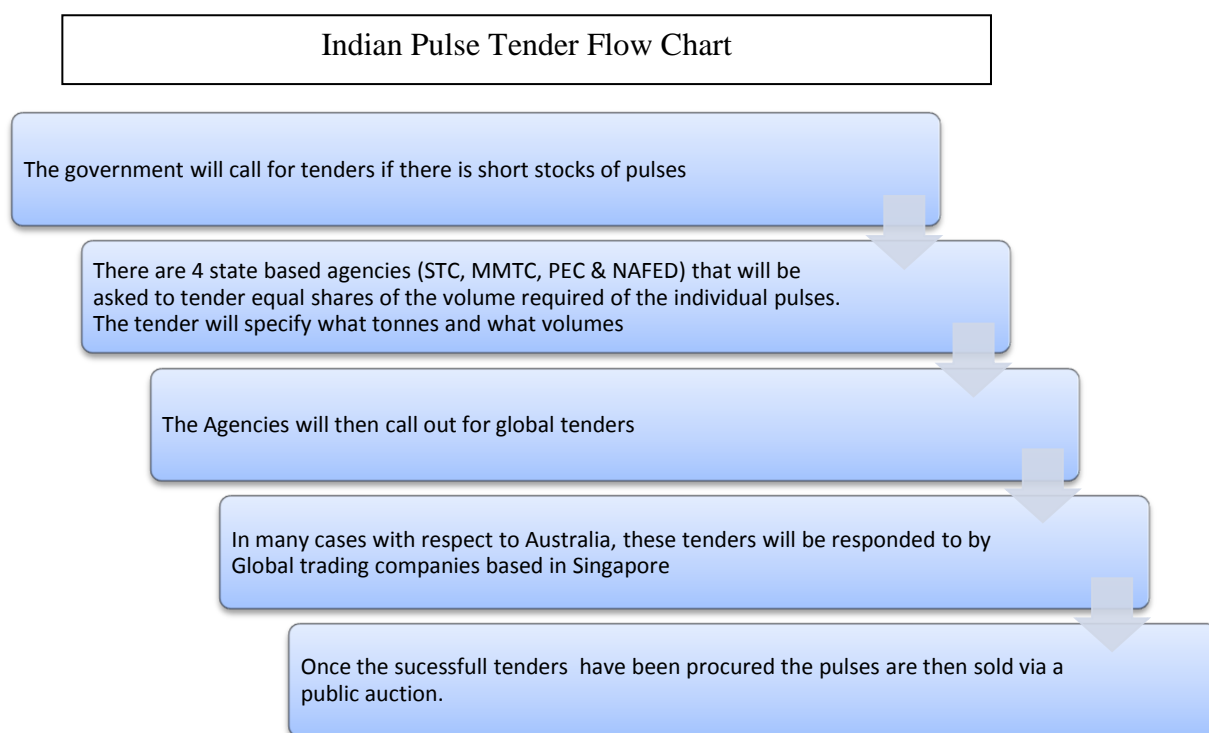
The Vegetarian Market

With the population currently standing at 1.1 billion and 50% of the population being vegetarian there is a good market for pulses to supply the required protein in the diets of these consumers. Pulses of choice in the Indian diet include Chick peas, lentils, mung beans, pigeon peas, and yellow peas. Our Australian produced Dun type field peas fits into this category. The current subsidy system in place does not encourage either breeders to spend much time or money on breeding better pulses nor does it encourage farmers to grow the crops that don't have a minimum support price such as pulses. In the current year 2 million tonnes of pulses will be imported into India to fill the void left by local production. By the year 2020 that figure is expected to reach at least 5MMT, leaving the door wide open for Australian farmers to potentially fill an increasing void that should also generate a reasonable price.

Pulse Tenders

What is typical in this situation is that once the government has called for tenders, local and international companies can submit a tender for supply to a government sub agency. The winning tender may be for example \$500/tn but the trader may have paid \$475/tn. The government procures the grain from the successful tender bidder and then auctions the grain to the processor's and traders at a public auction. The grain may often go for much lower than the acquired price say \$450/tn and be repurchased by the same trader that supplied the

grain to the govt. and then take a position on the grain and sell it to millers again for \$500/tn, effectively double dipping on the same grain.



The Current state of Punjab

A report in 2006 commented that ‘the state and farmers are now faced with a crisis. There is an over exploitation of natural resources, especially soil and underground water. The quality of the environment is threatened, farm incomes are declining and rural indebtedness is increasing’. (Punjab State Farmers Commission, 2006) Since this report the government has proactively commenced trying to offer farmers alternatives to rice in an attempt to reduce water consumption. Citrus has been one industry that is starting to prosper as well as dairy. Organics is also being trialed in Punjab in an attempt to utilize the waste from the Dairy.

India's Alternatives to Cereal Rotations

Fruits

It is advocated that higher value crops may have to replace some of the rice area in the future years to help balance the declining water table. In 2005 about 47,000 ha in the Punjab area were under cultivation of fruit and the farmers are actually doing well from it. The Punjab State Farmers Commission (2006, p.22) states that the fruit has found a remunerative domestic market and farmers are getting returns of between A\$1500-2500 per acre per annum. They also state that they believe another 25,000 ha could be converted over especially to sweet oranges, soft pears and guava which look promising.

Dairy

Definite opportunities are available for improving the animal husbandry of dairy cows. There is still some hygiene issues to overcome and some industry regulations that I think currently are impossible to enforce. Furthermore the cows are faced with extreme climatic conditions of heat stress and with that are issues of hygiene. There are also no food safety standards for milk production and peasants are reported to be doing unspeakable things in order to thicken the milk and allow it to then be diluted with water. There is also the opportunity to modernize the milking units and the processing stations.

Infrastructure

This is an area that needs a large amount of investment. The current road and rail systems are some of the most disorganized and substandard that I have seen in the world. The power grid network on the other hand is the worst I have seen in the world. How difficult it must be to get someone to invest into cold storage in the current environment. Imagine having storage full of perishable food stock only to have to power it by diesel for a portion of every day. What happens then, should the standby generator fail. At a Rural Investment Summit I attended in Delhi on the 7th of August 2009, there was much talk about the need for cold storage as currently about 30% of food produce is wasted. Towards the end of the day a presenter stated “how can the expense of supplying cold storage facilities be justified when it is cheaper to produce and waste the food than to store it” That comment stuck with me as a

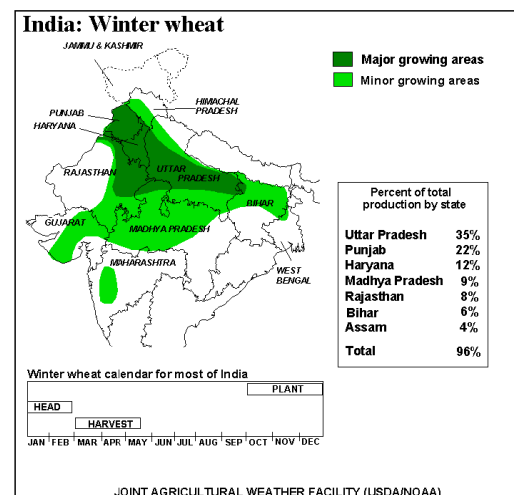
worthy statement as why there has not been the large scale investment into India's agricultural value adding sector. The majority of consumers are not financially in a position to give appreciation to the value in having year round supply of food from an international system that is preoccupied with delivering the consumer quality assured produce. In fact in India only 4% of people frequent modern western type supermarket facilities like the ones we are used to. Consumers are very price sensitive to using this facility and in times of recession they have reverted, like the rest of the population to purchasing their food from a corner store or street stall with very little overheads and no concern over what has happened to the food before its arrival at the market.

Indian Outcomes

The good news to come out of India is that Australia is the preferred choice of country when they need to import wheat because the characteristics are perfect for making their Chapati and Roti breads. Our wheat mills into flour with good protein and desired white colour.

The downside for the immediate future is that India has come off some great wheat production figures that would have topped up their food grain inventory with the Food Corporation of India which means that they will not be requiring any imports. The Monsoon season however was particularly bad, the worst in 37 years and that may affect plantings going into the 2009/10 wheat crop. If however the new season is another high yielding crop we may even see India exporting some wheat early next year and that may put further pressure on international wheat prices. The diagram below gives a good indication of the area of India to watch with respect to wheat production.

Keeping in mind that most of Punjab's wheat production is irrigated and will not rely as much on rainfall. There is some concern though that India may actually consume more than its typical 6.5 million tonnes of wheat per month because of the reduced rice production this year.



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source: (USDA & NOAA, 2009)

Pulses, as mentioned earlier are going to show some upside for growers in Australia. Therefore as growers we may need to have a bit more of a think as to how we market these grains. Currently, especially in WA, they take a back seat to our main grains and we tend to be more content as a result to accept a going price from a speculative trader. I think we can have a closer look at forming a co-operative pulse grain marketing system. One idea would be to buy allocation shares up to say 20,000 to 25,000 shares, where each share guarantees a tonne of allocation that has to be delivered to a cooperatively run harvest pool. The up-front fee may be \$4 per tonne that employs the services of someone to operate the pool and their sole responsibility is to watch for tenders, know the Singapore based traders, know the sub continent traders, freight and logistical matters concerned with each market and get the best

return for the growers. At the end of the pool the time based storage and handling fees would be deducted from the last payment.

The concern with India is that this is a country that when dealing directly with the people there needs to be a trust built up which would take some time and that time needs to be invested with the right person with legitimate contacts within the industry. The trust would then lead to the potential biggest problem which would be payment terms, especially if dealing with non government agencies. So the question you need to ask is whether you want to accept the pricing risks and opportunities or leave that to a trader.

The best thing we can do as farmers is to monitor what is happening in the Indian market. With respect to wheat their harvests should be nearing completion just as our crops are being ready to plant but most of the wheat production figures would be released by about March and if their harvest is low then we may expect a rise in wheat prices.

Durum Wheat Industry

Durum wheat is specific wheat to pasta and couscous manufacturing. It is a high protein, hard wheat with an intense yellow colour. Typically our market has had to compete with North America, Canada, Turkey, the EU and Syria on the export market. With the world watching as durum reached \$600 per tonne there are now programs for durum production running in India and Mexico that we can expect to compete against in the future. This year I was able to visit what looked to be a minimum 6.5 to 8tn/ha durum crops in Obregon, Mexico. Typically Australia has produced on average about 427,000 tonnes of durum with 55% coming out of NSW, 36% coming from South Australia and only 1.3% coming from Western Australia. Our domestic requirement in Australia is about 300 000 tonnes, of which San Remo in South Australia is the largest, consuming about 100,000tns leaving an export surplus of about 127,000 tonnes.

Western Australian Soils

Typically our soils in WA are slightly acidic and are very old and sandy soils that are not ideally suited to growing durum wheat. In my experience we have had to apply lime the year before and grow field peas to get enough natural nitrogen into the soil to assist with the durum crop being able to obtain the desired protein the following year.

Yields

Whilst we have grown durum we have never been able to find a variety that can out yield the current bread wheat varieties. Typically we can achieve about 80% of the yield of a bread wheat variety with durum varieties.

Marketing

Due to the small volumes currently being produced it has been very difficult to find a home for our durum wheat once it has been harvested. With the loss of AWB as a purchaser of last resort for our wheat we have to seriously consider the consequence of this in our business.

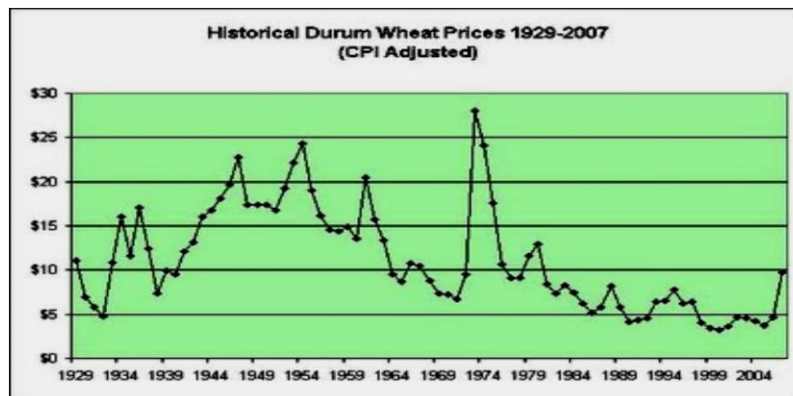
Competition

It was probably while in Mexico that I started to think about the reality of whether the durum wheat could work in WA. After comparing the 8tn/ha crops against our 2 – 2.5 tn/ha crops it wasn't making any sense. However they did have access to water, higher ph soils and plenty of long summer daylight. On my travels I also learnt that Turkey has increased its durum production and in Punjab, India they are also establishing a durum wheat production program which effectively will result in increased supply pressures and a downward trend on pricing.

North Dakota

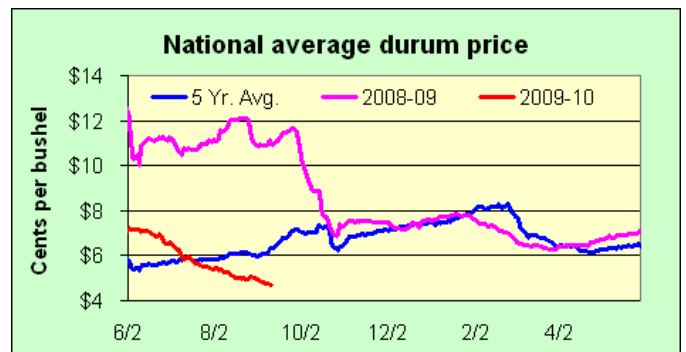
In North Dakota I was able to speak with numerous North Dakota State University (NSDU) representatives, like the extension director Jay Fisher, principal durum breeder Elias Elias, many farmers and the president of Dakota Growers Pasta Co. Mr Tim Dodd. The farmers were all very excited about the yields that they were pulling out of their fields which this year were up to 6tn to the hectare. The normal state average is close to 2tn/ha which made me feel a little better. The farmers in North Dakota generally have higher ph soils of around 7, high organic carbon levels and long hours of daylight and cool summer nights, ideal for growing durum. The region has gone through a large change though as the area cropped dropped from 3 million acres to 1.8 million over the last 10 years due to the fusarium head blight. This can and does affect their yields drastically. When asking farmers from the State what they thought of the industry long term they were not too positive. Troy Coons, farmer from Donnybrook N.D. for example believes that the industry goes in cycles whereby about two of every seven years the returns are worthwhile. He believes that the rest of the time it is just above break even for most farmers. Since we have just come off the peak it may be a good time to step out of the durum industry for a while. The next figure shows the historical pricing for durum wheat. While in cents per bushel the overall trend is what matters. As you

can see it is a continuum of peaks and troughs on a slow declining moving average price since the oil shock of the 70's.



(Source: Californian Farmer, 2009)

More worrying is the chart on the right which shows durum prices have now moved below the five year average. In fact when I was in the USA they had enacted the loan deficiency payment for durum producers because the price per bushel was below a satisfactory level as determined by the Farm Service Agency. I found that rather interesting considering the yields these farmers were achieving were from 3 to 6.5 tonne per hectare.



Molino Casillo's of Italy

To get the side of one of the world's largest semolina producers I visited them in Corato, Italy. At the Corato facility they have four mills which can process 1000 tonnes of durum per day. Casillo's import a lot of durum from Australia and use it to blend with the lower quality European durum to maintain specific grades of semolina for its customers. With the amount of large crops of

durum harvested this year the protein is relatively low and high protein Australian durum will be sought after but I would doubt that this will be reflected in the pricing. Francesco Casillo basically told me that for Western Australia to export durum to his company for processing he would require a minimum of 24,000 tonnes in a bulk shipment and nothing less than 13%



protein. To achieve this we would need at least another 80 to 100 farmers to plant durum in the state. Even then we would still almost certainly be selling to the one purchaser, being Casillo's, and it would be hard to command a great price as I don't think our quality of product would match that of the Liverpool Plains in NSW. However we may be able to be about four dollars cheaper on freight.



Durum wheat being Milled at Molino Casillo in Italy

Dakota Growers Pasta Co.

This company was formed in 1991 by a group of farmers that wanted to value add the durum that they were growing. The facility is a fully vertically integrated mill, pasta producing and packaging plant in the centre of North Dakota in a town called Carrington. The original growers each had shares that were valued at the price of a bushel of durum and were obligated to deliver the amount of durum for which they had shares, which at the time matched the capacity of the mill. The plant was completed in 1994 and by 1995 they were producing 109 million kilograms of pasta. Rather than compete head on with other pasta companies by branding their own labels they instead produced for the supermarket's private brands. That way they didn't have the extra expense of advertising to create demand. The company now employs 250 people and can process 27,000tn of durum per month. They are ranked third in America by sales which is about \$14 million per month. The return on asset would be close



Dakota Growers Pasta Company in Carrington, North Dakota

to 10% with a debt to equity ratio of 50%.

With respect for the premium durum grown in New South Wales I posed the question to Tim Dodd, President of Dakota Growers, whether he thought there was a market for very high quality pasta where the consumer could appreciate the higher quality and be prepared to pay a premium. The answer was no. The consumer sees pasta as a quick and cheap convenience meal and that pasta can now be made from lower quality durum wheat and the end consumer would not even notice. In fact the macaroni in macaroni and cheese pre-made meals is often not even made out of durum wheat. Often high protein spring wheat is used as it allows the pasta to become sticky and gives a better surface for the cheese to stick to.

Durum Outcomes

After looking into the industry from all perspectives and then applying that back to Western Australia, I think it is an industry will be difficult to establish permanently in our conditions given our current durum varieties and tonnages grown whilst our current varieties of bread wheat perform so well and require less associated selling risks. On our farm, I have decided to cease growing the crop for the time being, but will be monitoring the pricing cycle for the next opportunity and competitive variety to become available. In saying that however I do think that there is significant opportunity for farmers of NSW and SA to seriously take a look at the Dakota Growers model and rather than set up a rival pasta company to those existing in Australia, take the next step and explore the possibility of a joint venture with a Chinese group in a port city on the north east coast line between Shanghai and Beijing. The mill would need to be highly automated and state of the art to compete because after all dried pasta is only one step removed from the bulk commodity of wheat and the same rules apply. They would need to be the lowest cost producer of large volumes. The week after I visited Tim Dodd he actually had a group of Chinese visiting to interview him about his operation. The key to success in establishing a mill in China would be to capture the evolving convenience meal market. An important remark Tim Dodd mentioned is that in manufacturing pasta he sells 104% of the grain that he buys due to the fact that he is adding and selling water.

Recommendations

In summary the key take home message is that there will be continued opportunities for Australian grains into both China and India in the form of wheat, malt barley and pulses but we need to have a united industry body representing our grains in these markets similar to the American Wheat Associates, that is present at international trade days, meeting with government agencies, millers and processors to take full advantage of the opportunities. Growers need to understand their markets and read market signals more than ever in order to be growing what the consumers are demanding and being ready to adapt varieties and crop rotations as necessary.

Malt barley growers should be aiming to capture more value from the Chinese market by putting pressure on their cooperative marketing groups to explore the option of at least malting the barley and even forming a strategic partnership with a brewer to capture value in a market that is looking to expand from between 50 to 100 percent more than the current levels. If they cannot do this there may be an opportunity for the growers to raise funds themselves and venture into malting their own barley into China

Pulse growers need to review the current methods of marketing pulses. India will be required to import up to 5MMT of pulses by 2020. There may be scope to capture more margin should growers align themselves together to form a supply group that cleans the grain on farm and stores the grain in existing bulk storage facilities but interacts directly with the traders from Singapore that supply pulses into India.

The durum wheat market in Western Australia is in a position where current varieties and local soil types means that durum does not perform agronomically as well as bread wheat varieties for the majority of the state. The lack of a local processing facility and the total reliance on export marketing with limited supplies to back up the exercise puts it in a difficult position to succeed. New overseas producers are entering the market place which puts more pressure on prices.

I believe farmers need to focus on growing grains that they are successful at producing for consumers they understand and the market place is competitively bidding for.

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Plain English Compendium Summary

Project Title:	Grains Demand and Consumption
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Scholar:	Leon M Ryan
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Objectives	<p>To obtain a better understanding of the Chinese and Indian markets we will supply as Australian broad acre grain exporters.</p> <p>To identify whether China and India will be able to successfully be feed themselves from domestic supplies.</p> <p>To form an opinion of the developing food consumption trends and determine how our production will fit the trends that are emerging.</p> <p>To evaluate Durum wheat as a viable/sustainable alternate crop to bread wheat.</p>
Background	<p>As a broad acre grain grower I feel that it is important to understand the markets and end uses of our grains to make sure we are not over supplying the world with one particular type of grain and undersupplying with another. With respect to being a commodity producer we have a very small amount of product differentiation to play with, but there are few perfect substitutes for grain. Farmers are at the mercy of global supply and demand rules and the weather which determine our profit margins. I was hoping that there may been some small niche markets that I may have been able to uncover or even some middle men that we may have been able to remove to increase our bottom line. I thought the durum wheat market may have been one of them.</p>
Research	<p>This research was conducted over a twelve month period from October 2008 through to October 2009 and was conducted in China, Mexico, India, Italy and America. During this process I spoke with researchers, farmers, grain marketers, corporate farmers, economists, traders on the CBOT, the USDA, pasta companies, international durum millers, university professors, fertiliser manufacturers, trade commissioners, plant breeders, policy advisors global food marketers.</p>
Outcomes	<p>Farmers need to be very proactive at knowing what is happening in our major export markets. This involves understanding what is driving the demands for grains and adapting our cropping rotations to suit trends in food consumption. So many factors affect a farmer's profitability but none more so than over or under supply of grain and, ultimately, that is determined by water and access to land resources.</p>
Implications	<p>Farmers need to be prepared to make changes to their crop rotations on a yearly basis so they are not supplying more grain into an oversupplied world market. We need to be able to read market signals and follow food consumption trends. Farmers must also be prepared to look at alternative ways to market pulses in an attempt to capture improved margins. Our farmer owned grain handling, and marketing companies need to be more pro-active in owning synergistic additions to the value chain in order to deliver better returns to growers.</p>