Kellogg Rural Leaders Programme Report

New Zealand Maize Grain Production- Where is the future

By Grant McDonald 2012

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Executive Summary

The Maize grain industry in New Zealand has remained relatively static over the last 5 years in both the human and animal food sectors.

The domestic market in New Zealand presents limited opportunities to expand in both the food and animal sectors. In addition, New Zealand's internal market which is 80% driven by demand from compound feed manufacturers is driven solely by the cost of the products. Subsequently most of the feed manufacturers look to displace maize grain as a key ingredient in their blends when they can source a cheaper alternative grain or by-products such as Palm Kernel to substitute the volume of maize grain.

In order for the maize grain industry to thrive over the next 10 or more years New Zealand must drive demand for New Zealand made products and look at how and where those products can be positioned into the New Zealand animal feed industry and wider into the market external to New Zealand.

New Zealand competitive edge is its clean, green image and in particular its stance on non-GMO stance. However this edge does not mean that exporting to most countries is viable. Some countries are non-discernible about GMO and quality including Japan and China who purchase maize grain predominantly on price.

There is an opportunity however to investigate Korea as a potential market. Koreans value the New Zealand's clean, green and healthy image and therefore also select GMO free grain in the food production. Koreans also have a perception that New Zealander's values are strongly aligned with the values of their culture.

New Zealand needs to position itself as a supplier of GMO-free high end premium maize grain into this market by establishing a sub-brand through a holding Company. This will ensure that quality standards are met by growers adhering to strict specifications and that the New Zealand brand is safe guarded.

1. OBJECTIVE

The objective of this report is to:

- outline the current state of the New Zealand maize grain industry market and its New Zealand challenges
- Examine the pressures on the viability of the industry and ways in which the country can expand its markets to ensure it has control over its future and not simply become price takers.

This report also seeks to outline an opportunity that has been identified and that is further research into the topic.

2. BACKGROUND

2.1 Current Maize Grain Production

The current maize grain annual production in New Zealand is approximately 180,000 tonnes. This is down from a high of 250,000 tonnes that have been produced in New Zealand. This equates to land in maize grain production of some 17,143 ha down from 23,800 ha.

There are two major companies involved in the buying and selling of grain; PGG Wrightson and Viterra. Both companies have significant investment in storage and grain drying equipment. There are also a number of smaller operators that own drying and storage equipment.

2.2 Areas of Maize Grain Consumption

There are four major areas of grain consumption. These are:

A	Compound stock feed – dairy, pig and poultry industries	95,000 tonnes on average
B	Maize starch	30,000 tonnes
C	Food grade (gritting)	20,000 tonnes
D	Export and niche market e.g. organics	10,000 tonnes
	TOTAL MAIZE GRAIN	155,000 tonnes

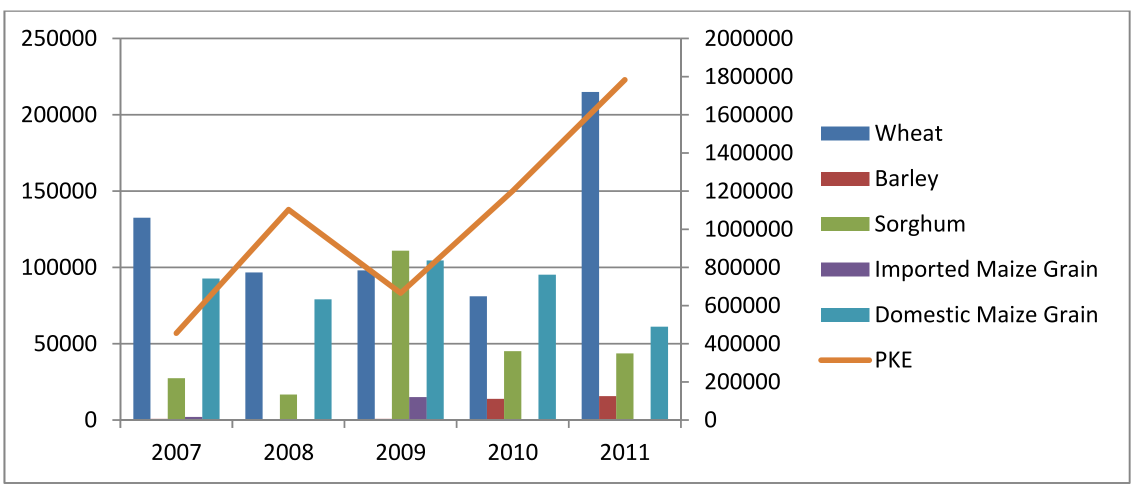
2.3 Livestock Grain Consumption Sector

It appears from the data contained in the New Zealand Feed Manufacturers' Association (NZFMA) Annual Report that usage of compound feeds for poultry remains relatively static and pig production is declining in New Zealand and as such is reflecting in a drop in feed production for this sector. The ruminant feed market however has seen a lift in the quantity of compound feed being produced. This is shown in the increased levels of production, as an average over the past five years with a significant lift in 1998 as a result of a major drought in the main dairy production areas of Taranaki and the Waikato.

Along with the increase in production, demand has been driven by an increase in farmers installing in-shed feeding systems which can utilise feed sources such as straight grain, palm kernel or a manufactured compound feed source containing a mixture of grain and palm kernel and other additives such as minerals.

The largest percentage of maize grain is used in the poultry and ruminant compound feed industries. However, the NZFMA statistics show a trend in the poultry meat production sector where maize grain is being displaced in favour of cheaper feeds such as feed wheat, sorghum and feed barley. This is primarily sourced from the Australian market.

The ruminant feed production, maize grain usage appears to be static with an increase also cheaper alternative grains being used as well as palm kernel. The following graph shows the imported products in compound feed manufacturing verus New Zealand produced grain.



As illustrated in the previous graph, domestic maize grain consumption can fluctuate against imported products. It is anticipated that maize grain demand will improve this season. This is driven by world reaction to the drought in the USA causing a predicted reduction in volumes available for export and European countries such as the Ukraine announcing a total ban on wheat exports, thus increasing the market demand for Australian wheat.

In addition it is expected that the Australian wheat harvest will reduce in volume this season which will further reduce Australian stocks which are typically down by around 1.16 million tonnes year on year (Profamer Grain and Food New Zealand, October 30th 2012).

Sorghum crops as a result are in demand to fill the deficit in the feed market thus shortening supply and increasing prices to importers here in New Zealand.

2.4 Food Grade Grain Consumption Sector

The food grade maize grain sector is also relatively static with one major dry grind mill based in Gisborne. This plant is relatively old and in need of some capital upgrade. The business is a New Zealand family owned business so has been loyal to sourcing local grain for its production but it is currently for sale and dynamic changes may occur with a new owner.

There are additional constraints to the dry milling industry. End user demand for the grits that are produced is largely internally in New Zealand by cereal and snack food manufacturers. Therefore growth in this market sector is small.

To achieve high recovery rates especially for the premium number one sized grit, a maize grain kernel must be of good size and typically this grain is only produced in the higher sunshine areas of the East Coast. Therefore there is limited supply of grain from grain production areas such as the Waikato and the Manawatu/Rangitikei regions.

Both companies are under pressure to be cost competitive in their chosen markets.

3. COST AND MARKET CONSIDERATIONS

So just how can the New Zealand Maize Grain Grower have any certainty of an economically sustainable future?

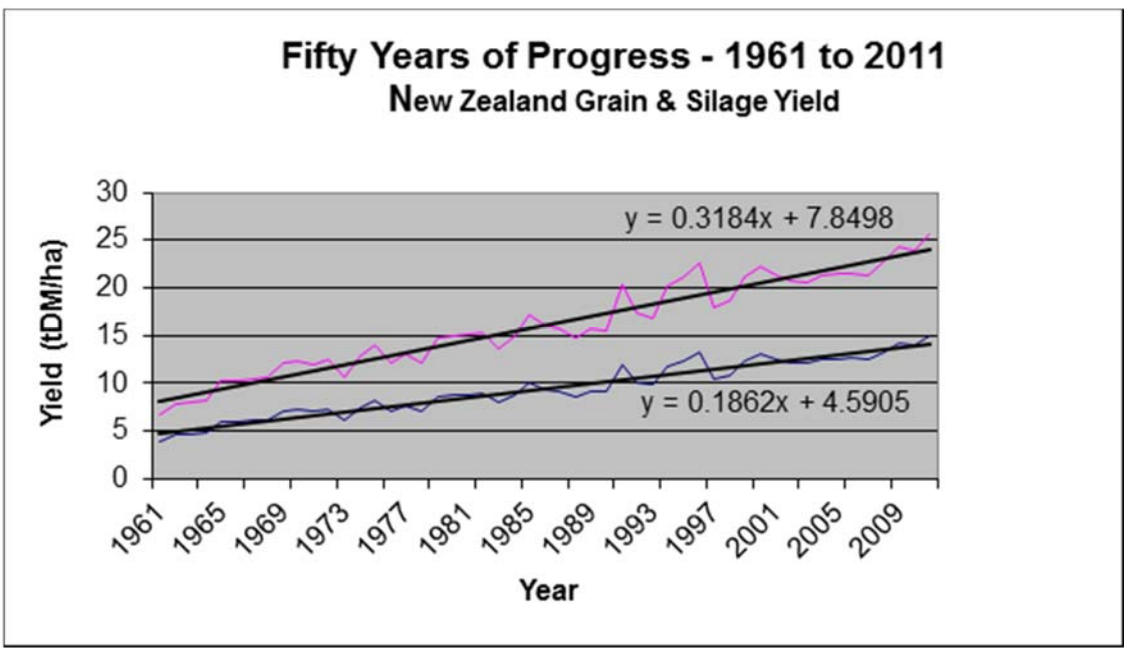
3.1 Cost Implications

Typically as in most industries the two areas that drive returns year on year are reducing or controlling costs and increasing production whilst maintaining costs at an appropriate level.

The New Zealand growers cost of production per hectare as measured by Pioneer Brand Products annual survey has risen on average by 35% over the past nine years however the average price of maize grain in New Zealand as a percentage of input costs has remained relatively the same at 16%.

Other than reducing some costs i.e. reduced tillage (which is considered from an economic and environmental sustainability point of view) growers have no control over direct inputs such as seed, chemicals and fertiliser that are required to produce high yields per hectare. Seed costs whilst they have increased over this period are the only major input that has continued to deliver increased value to the grower in the form of yield capabilities.

The following graph demonstrates growth in grain and silage yield over the last 50 years.



Another major cost to growers is the cost of land as a large percentage of land is leased. This results in grain production being pushed into more marginal growing regions and as a result average yields decline sometimes negating the benefits.

Therefore a grower only has control over how much grain he can produce per hectare through good management and decision making and even then climate has the largest influence over the end result.

3.2 Internal Market Considerations

The market opportunities for New Zealand maize grain growers to expand the domestic consumption of maize grain for food or animal feed markets are limited. New Zealand is the extended market for the large scale high volume Australian grain industry where poorer quality products are often found.

New Zealand's internal market which is 80% driven by demand from compound feed manufacturers is driven solely by the cost of the products. Subsequently most of the feed manufacturers will look to displace maize grain as a key ingredient in their blends when they can source a cheaper alternative grain or by-products such as Palm Kernel to substitute the volume of maize grain. Therefore price is the key driver, and sustainability of maize grain supply from one year to the next is not a strong consideration in the buying decision.

In order for the maize grain industry to thrive over the next 10 or more years New Zealand must drive demand for New Zealand made products and look at how and where those products can be positioned into the New Zealand animal feed industry.

In an Industry that is solely focussed on cost per kilogram of dry matter where a product originates from is of very little consequence. This is clearly evident in the rapid uptake and usage of Palm kernel over the past 5 years.

Some steps have been taken to try and educate and displace other feed sources such as wheat and barley as the main grain source by demonstrating the actual value of a tonne of simple maize grain whole or kibbled. This is gaining traction as the in-shed dairy feed market sector grows but once again is likely to lose traction over time as cost becomes the overriding consideration and other cheaper products are substituted once again.

Industry trends over a period of time in New Zealand demonstrate that maize grain growers need to look at how to take control of their own future economic sustainability. The industry needs to collectively look at how to position the industry to attract younger farmers into the industry and remain in it. If this does not occur, then the current capital infrastructure that is in place in New Zealand will not get the investment needed in terms of maintenance or upgrades.

3.3 External Market Considerations

So are there niche markets for New Zealand grain and how realistic and achievable are they in terms of volume and price premium to the grower? The simple answer is no. New Zealand's internal markets are too small to have a major impact on the industry.

Therefore the approach needs to be on looking at opportunities to export New Zealand produced grain maize to areas outside the small traditional exports to the pacific Island nations. Questions then to consider are:

1. What is the natural advantage that New Zealand Grain producers have over other countries to differentiate ourselves from every other maize grain exporting country in the world?
2. How do we take a bulk product and de-commoditise it?

Part of the answer lies in leveraging New Zealand's well publicised position of being "clean and green". However that in itself is not enough; to be really successful New Zealand needs to capitalise on its "no GMO" (Genetically Modified Organisms) reputation and status in the world.

There are a number of overseas markets that are net importers of maize grain and have a growing consumption of maize based food products. Asia in general is a natural target due to its close proximity to New Zealand. It also has a fast growing population of people who are becoming more affluent and have developed a taste for western type foods.

China is an obvious target however the consumers do not have the discernible demand for non GMO ingredients in their food as other countries do.

Australia is already well ahead of the game according to the Maize Association of Australia. An article published in the "The Cob" quarterly publication states that Australia has already begun investigating exporting maize grain to Japan and Korea. The following is an excerpt from the publication (Spring 2011):

> *"Japan and Korea use 100% GM free maize sourced from mainly the United States and Brazil for dry milled products. In the USA and Brazil however approximately 90% of all maize produced is of a GM origin and this is of great concern to Japanese millers"*
>
> *"We believe that there is an opportunity for Australian farmers who are willing and able to produce good quality maize while achieving acceptable yields. To benefit from increased export opportunities to these countries whose demand for maize based beverage and snack food additives is growing rapidly."*
>
> *"The single most important message we all received from meeting with Japanese and Korean millers was Australia's GM status. "*
>
> - *Millers and manufacturers are well aware that sourcing GM free product is becoming increasingly difficult in the Americas.*
> - *GM free product is being sourced from Hungary and Serbia. Quality however is poor from both these nations.*
> - *French produce is too expensive and therefore does not compete*
> - *Millers are pleased with the Australian product as long as we remain competitive with the US*
> - *There is an increasing demand for GM free product in both countries.*
>
> *It is therefore paramount that we as a present and future maize exporting nation remain this way.*
>
> *One of the major problems for Australian growers to be competitive with the USA is not only the lack of Government subsidies but also the ever increasing cost of transport and lack of logistical capacity for maize e.g. the availability of food quality containers for export and the bulk loading facilities willing to handle maize segregations."*

Therefore New Zealand needs to explore markets that it can enter into that align with the values of the country and where New Zealand can leverage its reputation and strengths. The most likely market identified that could meet these requirements is Korea.

The following sections outline why Korea was chosen as a potentially viable market.

4. KOREA AS A KEY OPPORTUNITY

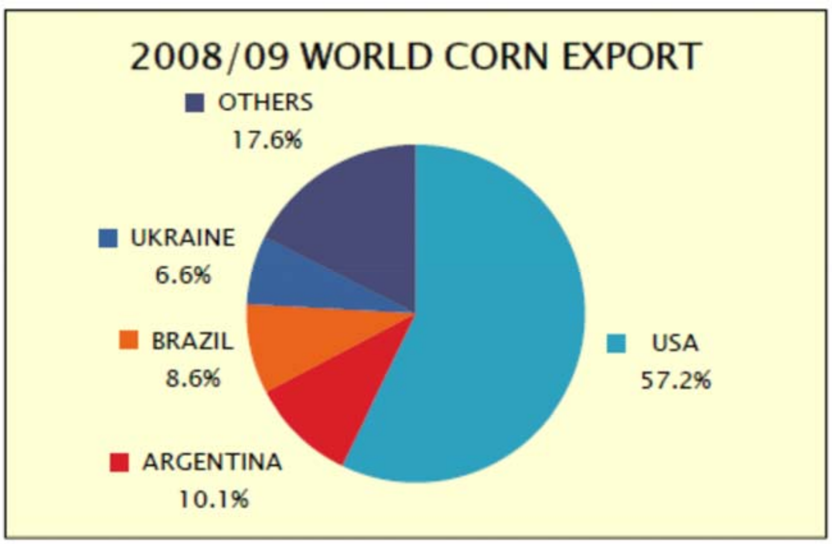
4.1 Korean Maize Grain Market Situation

The Korean corn market situation is outlined in the "Dongil Grain Company Limited Korean Corn Market Report" dated 23 June 2010. The situation is as follows:

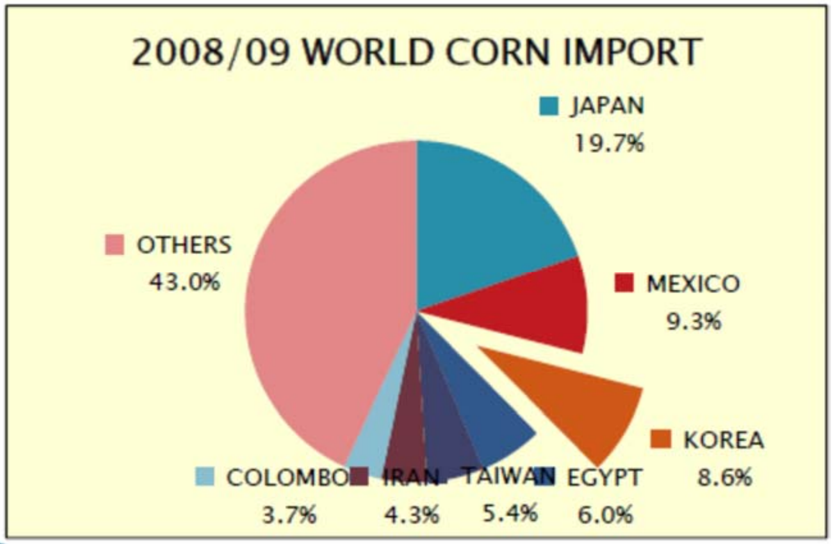
- About 98% of corn in Korea is imported from overseas.
- Korea is the second largest export market for American corn however, only 12% of American corn production is GMO free.
- 75% is consumed for animal feed and 25% by the food sector.
- Non-GMO maize is demanded by the food sector – as they perceive it to be a risk to human beings.

Other relevant facts include:

- Data from 2008/2009 (this is only data available at this point) illustrates that of all the world corn exports approximately 75% of exports were from the USA, Brazil and Argentina which have moved substantially into producing primarily GMO maize.
- The Ukraine exports approximately 6% and this is GMO free but of poor quality.

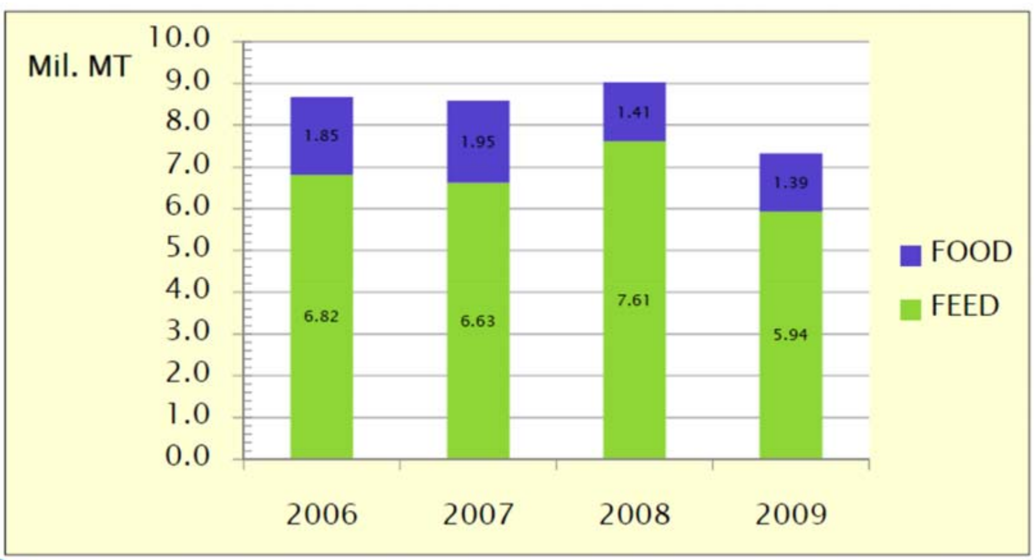


- Of the markets identified, Korea and Japan import approximately 28% of the corn exported worldwide – Korea importing approximately 9% of this.



- Total corn exports into Korea up to 2009 were 5.94 million metric tonnes for feed and 1.4 million metric tonnes for food grade.

TOTAL CORN IMPORTATION INTO KOREA 2006 TO 2009



Facts continued:

- Users of maize grain based products in Korea seek stable non-GMO corn supply
- This is due to Korean food regulations which mandatorily state that products be physically labeled showing where the ingredients were sourced from which effectively helps the consumer to determine whether the product is GMO free or not
- Consumer prejudice on GMO food in Korea is negative
- Korean food and beverage industry demands non GMO maize only

4.2 Korean Perception of New Zealand

The New Zealand Trade and Enterprise Agency (NZTEA) have researched the Korean market's perception of New Zealand. In terms of a nation, New Zealand has an advantage over many countries as it is largely perceived by the Koreans as having similar values, having people who are warm, honest and have a high level of integrity. The Koreans values these qualities in themselves and so these naturally translate to a positive image of New Zealand and a high level of trust and goodwill.

However, in terms of the New Zealand economy Korea perceives New Zealand as having somewhat stagnated over the last 10 or so years despite its toolkit of both intellectual and environmental resources. Korea has itself made great advances. To this end Korea is frustrated that New Zealand is not able to step up to its business standards as New Zealand businesses on the whole are not adequately prepared when they approach Korea.

4.3 New Zealand Food and Beverage Market Perception

The opportunities for New Zealand in the Korean Food and Beverage market are unlimited. Korean people place a high value on quality healthy food that meets the most stringent standard of product safety. Social status in Korea is linked to wellbeing – wellbeing is something Koreans aspire to as it is a symbol of wealth and social status.

NZTEA research has found that the words "Natural", "Organic" and "Well-being" resonate with Koreans; these terms are all associated with New Zealand's own food and beverage industry. New Zealand's brand is also associated with the words "Pure", "Healthy", "Natural" and "Clean". Therefore New Zealand's brand comes with trust and reliability.

The New Zealand food and beverage industry is a perceived strength in Korea with the ability to claim world-wide leadership in dairy, fruit and vegetables and some wines. As green technologies are a strong fit for New Zealand they also shift the perception of the country into a more sophisticated social context to Korea.

Korean product knowledge of New Zealand is generally limited to unprocessed foods that we are also internationally well-known such as fruit and vegetables and sheep and lamb. Korean business retailers and hotels do not know of or think of New Zealand as a producer of added value foods such as cheese and ice cream. New Zealand has a limited footprint in this area as well as a lack of iconic brands in Korea.

Korea aspires to be a world leader and are working very hard to become one. The country will not overtly chase New Zealand as they think more about Australia. New Zealand is indeed slipping back in the Korean market and is merely seen as "nice country".

4.4 Marketing and Branding Considerations for Korea

The use of symbols and logos is wide in Korea with the New Zealand silver fern well recognised there. The colours used in Korea are strong hence the black and white of the fern lacks a strong impact (however it is also not a negative impact). The use of a rich green colour for the fern has been a recommendation from Korea.

Korea has a limited knowledge of New Zealand and concepts need to be land based such as food and beverage and green technologies as they intuitively make sense to Koreans.

5. MOVING FORWARD IN KOREA

It is established in this paper that Korea is a logical fit for the New Zealand Food and Beverage market. This sector can in effect be a spring board sector for other sectors of New Zealand to utilise in the future once learning experience has been completed and the industry has successfully embed itself as key player in Korea.

In order to start the process of moving into Korea it is necessary to develop a marketing sub-brand. The following outlines a proposed marketing brief.

5.1 Industry Sub Brand

The findings of both the NZTEA and the Maize Association of Australia illustrates that the New Zealand maize grain industry could potentially develop its own sub brand into the Korean market.

A sub brand is not a brand that is overtly visible to the retailer or consumer. It is a brand for the ingredient product, in this case maize grain. It's purpose is to symbolise all the elements that the ingredient product represents. For example Fonterra or Zespri brands are often used by manufacturer customers alongside their own brands to illustrate paticular properties that they wish to optimise for marketing purposes. In this case identifying clearly where the base ingredient originated and also visually demonstrating that this paticular brand has sourced non GMO product.

The sub-brand would be used on advertising and clearly evident on their labelling. It would also be used in marketing and communication material such as stationery, brochures, product specification, training packages, product packaging and promotional goods and materials.

This Company who owns the brand is effectively a "middle man" holding Company for the brand. This Company would have a standardised programme of maize grown production including quality spefications, employment relations and health and safety procedures and policies, environmental responsiblities etc. Growers that wish to be associated with the sub-brand Company would have to demonstrate that they can meet this standard in order to be part of the sub brand and be audited on a regular basis against such standards and regulatory requirements by an independently appointed body.

Supppliers to the sub brand Company would also be required to vest funds into the Company to secure membership and demonstrate their full commitment. This prevents them going into competition by developing their own brand or joining another such Company in competition to the brand.

This business arragnment is one of "general interest" where the relationship is mutually beneficial versus one of "vested interest" where one or other of the parties seeks to get gain over the other.

5.1.1 A proposed brand has been developed by a marketing Company to a specific marketing brief. This brand is called “Pure New Zealand Grain”

A logo has been developed to demonstrat the following brand personalities which are:

1. Pure
2. Clean
3. Green
4. Safe
5. Healthy/good for you
6. Completely trustworthy
7. Consistent, reliable

The resulting pictorial brand is:

This brand needs to maintain its integrity and needs to remain the property of the maize grain industry as a whole.

The design meets the marketing brief for it to be:

1. Unique
2. Simple
3. Can live with the "hero" (or main brand)
4. Easily identifiable
5. Live and breathe its personality

6. ECONOMIC CONSIDERATIONS IN EXPORTING TO KOREA

The size of the market in Korea for non GMO corn is approximately 1.4 million metric tonnes and growing as the population continues to expand.

New Zealand of course does not have the growing capacity to take up a significant market share. However, New Zealand can position itself as a premium supplier of high quality, guaranteed GMO free corn i.e. a niche market supplier.

The approach must be to leave the high volume bulk supply end of the market to Australia and focus on customers who wish to leverage off the clean, green and healthy image of New Zealand and the alignment to the values of the country.

One of the key strategies to entice the Korean customer to buy high end premium “New Zealand Pure Grain” is to create a marketing strategy that capture the New Zealand and image. This has been very successful in marketing campaigns with other New Zealand companies such as:

- Fonterra selling nutritionals products such as grown up milk powders and baby powders into China commanding a high price and much sought after products.

- The Merino brand which has turned a New Zealand commodity product into a niche product selling to markets that value the New Zealand image at a high end price.

merino inc.

- First Light Foods, a marketer of meat products to the food industry worldwide with a uniquely New Zealand story utilising the producer of the sourced meat in their marketing campaign.

firstlight®

6.1 Estimated Costs to Export

An estimate of the costs based on current environment demonstrates that there would need to be a premium placed on New Zealand Pure Grain in order for it to return sufficient profit to the grower.

Before embarking on further developing this brand and associated Company, in depth investigation and due diligence would need to take place.

It is proposed to use this report as a basis for an application for Agmardt funding to engage with a company or person(s) to undertake a further investigative study in the marketplace encompassing all aspects required.

However, rough calculations (not including return to shareholder grower) based on 50,000 metric tonnes:

Shipping	$125
Packaging and packing	$25
Cost of Operating Holding Company	$4
Overheads and marketing	$15
Total	**$169**

Currently grower gross return per tonne is $400 per metric tonne.

The cost of end buyer would be grower return + costs as above + premium. The premium would be the return to the grower over and above gross return.

7. CONCLUSION AND RECOMMENDATION

This report has examined the potential markets for New Zealand Pure Maize Grain.

The research has lead to the conclusion that Korea would be a market worthy of further investigation and investment into it as an emerging market for New Zealand growers.

To participate in the marketplace with this venture does not require significant capital investment to get the venture up and running as much of the infrastructure and intellectual property already exists within the industry. In addition, there are industry groups and government initiatives such Agmartd and New Trade and Enterprise that can provide additional expertise and support.

It is the recommendation of this report writer that this initiative be pursued for the benefit of the New Zealand maize grain growers and New Zealand's economy.

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Ant Hassett, Designer, MetroEXP

Also my wife Sharon for putting up with me during the hours of researching and writing this report.

APPENDICES

Appendix 1 – Companies in Korea sourcing Maize Grain

Appendix 2 – Sub-brand pictorial illustration on a bulk bag of maize for export

Appendix 3 – Data from Graph on Page 12

Appendix 1 – Companies in Korea sourcing Maize Grain

Company Name	Sales USD (mil)	Company Name	Sales USD (mil)
Angyehabdong Migokjonghabcheorijang.	12.9	Angyehabdong Migokjonghabcheorijang.	12.9
Anthro Bio-Tech	1.4	Juniu Fruits Co.,Ltd.	2.5
Any Flower Co., Ltd	3.2	Juyoung Distribution	1.4
Apeseon Co., Ltd	6.5	K.H Food	9.5
B.G.S.Korea	2.4	Kaka Co., Ltd.,	4.8
B2B Distribution	7.8	Kang Food Co., Ltd.	1.1
Baeksan Livestock	2.7	Korea Flour Mills Co., Ltd.	96.8
Baekyang Food Co., Ltd.	0.7	Korea Rmc Co., Ltd	13.7
Bibong Store	2.8	Kumhwa Goksan Co., Ltd	2.7
Bobae Sangsa Co., Ltd	2.4	Kwang Jeon Foods & Pharmacy Co., Ltd.	4.5
Bongpyung Co., Ltd.	2.2	Kyungki Chemical Co., Ltd.	13.3
C&C World Co.,Ltd.	3.8	Leeyoung International Inc.	1.2
Car Gill Trading Limited Branch Co., Ltd.	2.5	Mansu Nongsan Co., Ltd	2.4
Chamnong Farmming Assotiation	8.4	Mildawon Co., Ltd.	16.9
Chogwang Sangsa Co., Ltd	2.4	Min Woo Traing Do.	2.2
Chungdo	4.5	Miteum & Jungsung	2.2
Chungnong Fork Co.,Ltd	2.7	Namyang Aloe Susung Branch	5.2
Chunhanggol Farmming Assotiaton	2.4	Nano Engineering Development	2.7
Ck Flower Co., Ltd	2.4	Natural Town Food Co., Ltd.	17.7
D.M. Sangsa	9.5	Neji Farmming Ditribution Assotiation	4.0
Daehan Flour Mill Co., Ltd.	678.5	Nokyongdang Buying Wholesale Oriental Medicine Co.	16.7
Daehan Trading Co., Ltd.	3.4	Nong Sim Kellogg Company	81.6
Daejeon Pet-Dog Co., Ltd	2.4	Nongjin Co., Ltd.	4.5
Daenong Rice Polishing	8.1	Nongsim Kellogue Co., Ltd.	2.0
Daesan & Co., Ltd.,	14.0	Ocean Life	2.4
Daesun Flour Mills Co., Ltd.	82.4	Ok Marin Tech	2.4
Dalgoum Confectionery	2.1	P&Rice Co., Ltd.	2.8
Dasun Mulsan Co., Ltd.,	4.8	Paldo General Logistics Co., Ltd	2.4
Deokhyun Fruit & Vegetable Co., Ltd	2.4	Pilkyung Co., Ltd	2.4
Dezon Food	5.1	Punggük Alcohol Industrial Co., Ltd.	72.7
DongAOne Co Ltd	472.0	Purena Co., Ltd	2.4
Dongeusansam Co., Ltd	2.4	Pyounghwa Rice Polishing	0.4
Dongho Moolsan	4.4	Rmt Co., Ltd.	0.6
Dongil Grain Co., Ltd.	19.4	Sa Jo Maeul Co., Ltd.,	2.9
Dongjin Hyupdong Mikok General Treatment Service	2.4	Saechunnyun Fence Distribution	2.5
Dongnam Co., Ltd.	2.8	Saenong Co., Ltd.	5.8
Dongsung Rice Polishing	3.6	SAJOHAEPYO Corporation	488.0
Dooyoung Co., Ltd.	14.6	Sam Chang Industry Co., Ltd.	3.8
Dotulak Sangsa Co., Ltd.	2.2	Sam Hae Flsitrlesfrlen Food	2.4
Duksugung Hangwa Co., Ltd.	7.0	Samheung Co., Ltd.	6.9
Dusa Nongsan	3.9	Samho Nongsan	0.5
E Prime Distribution	2.6	Samhwa Flour Mills Co., Ltd.	41.0
Ee Flower Co., Ltd	2.1	Samjeong Industry	4.4
Es Ganghwa Farm Co., Ltd.	7.8	Samjin Fs Co., Ltd.	2.9
Feednet Co., Ltd.	25.3	Samjung Trading	2.2
Furina Fat Food	3.3	Samyang Leather	15.4
Gangjin Farming Office	1.3	Samyang Milmax Corporation	101.9
Geonganghan Animal Co., Ltd	2.4	Samyangsa Ganghwa Branch	4.4
Geonu F.P Co., Ltd.	1.0	Samyoung Food	6.1
Green Logitec	2.5	Sanmaeul	2.5
Gulye Purina Assotiation Incorporation Co., Ltd.	4.7	Santomiya Korea Co., Ltd.	1.3
Gwangmyeong Store	3.7	Sekwang Foods Co.	2.4
Gyeong Buk Corporation	10.2	Senong	9.7
Gyeongseong Enterprise Co., Ltd.	2.9	Seogbo Distribution Co., Ltd.	2.7
Haemi Rice General Treatment	7.5	Seoul Distribution Co., Ltd	2.4
Han Green.Co.,Ltd	2.2	Shinpyung Trading Co., Ltd.	2.8
Hana Industrial	6.7	Songhak Food Ltd.	8.5
Hanil Feed	187.7	Sunday Flower Co., Ltd	2.4
Hanil Transportation Co., Ltd.	4.5	Sungdo Corp.	3.2
Hankook Koksan Co., Ltd.	4.9	Sunil Government Rice Processing	50.1
Hanmirae Co., Ltd.	2.6	Sunjin Sangsa	2.2
Iji Fisheries	2.3	Tenco Science	2.4
Jaemin Industrial Co., Ltd	5.7	Verismo Co., Ltd.	9.5
Jayuneul Sarangha Saramdeul	2.7	Win Food Co., Ltd	5.4
Jeil Pork	2.4	Woo Wha Mulsan Co., Ltd.	2.4
Jinsung	7.8	Woolee Food Co.,Ltd	3.9
Jirisan Ogalpi	2.4	Woosan Industry	2.2
Jisa Farming Federation	11.3	World Flowers	2.4
Joyang Heungup Co., Ltd	2.4	Yusung Food Industry	0.1

Appendix 2 – Sub-brand pictorial illustration on a bulk bag of maize for export

Appendix 3 – Data from Graph on Page xxx

World Corn Trade (USDA)

Unit: Thousand M/T	2005/06	2006/07	2007/08	2008/09	2009/10Apr
TY Exports					
Argentina	10,707	15,693	15,676	8,458	12,000
Brazil	2,826	8,071	7,883	7,178	8,000
Burma	85	125	125	400	350
EU-27	449	664	591	1,743	1,500
India	497	582	5,077	2,551	1,500
Paraguay	1,314	1,981	1,461	1,862	1,000
Serbia	nr	854	128	1,467	2,000
South Africa	1,406	431	1,124	2,111	2,500
Thailand	121	442	646	786	1,000
Ukraine	2,464	1,027	2,074	5,497	5,000
Others	6,655	7,308	2,717	3,808	2,595
Subtotal	26,524	37,178	37,502	35,861	37,445
United States	56,084	54,214	60,663	47,907	48,000
World Total	82,608	91,392	98,165	83,768	85,445
TY Imports					
Algeria	2,061	2,463	2,166	1,903	2,100
Brazil	931	1,204	961	1,092	700
Canada	1,962	2,226	3,117	1,844	2,000
Chile	1,599	1,508	1,628	779	1,200
Colombia	3,151	3,386	3,267	3,068	3,300
Cuba	501	646	811	750	800
Dominican Republic	1,068	1,212	1,074	973	1,000
Egypt	4,397	4,826	4,151	5,031	5,000
EU-27	2,634	7,056	14,016	2,743	2,500
Guatemala	751	764	617	673	750
Iran	2,300	3,300	2,900	3,600	3,200
Israel	1,128	1,311	1,374	846	1,000
Japan	16,617	16,713	16,614	16,533	16,300
Kenya	94	2	202	1,278	1,000
Korea South	8,483	8,731	9,311	7,194	7,500
Malaysia	2,517	2,363	3,181	2,447	2,500
Mexico	6,787	8,944	9,556	7,764	8,000
Morocco	1,491	1,683	1,858	1,500	1,600
Peru	1,467	1,528	1,469	1,307	1,500
Saudi Arabia	1,472	1,577	1,961	1,482	1,800
Syria	1,256	1,729	1,661	1,784	2,000
Taiwan	4,533	4,283	4,527	4,532	4,600
Tunisia	624	653	805	600	800
Venezuela	152	534	1,103	1,336	1,300
Vietnam	475	650	700	1,100	900
Others	11,097	10,767	10,435	9,486	8,695
Subtotal	79,548	90,059	99,465	81,645	82,045
Unaccounted	2,850	1,014	-1,801	1,786	3,100
United States	210	319	501	337	300
World Total	82,608	91,392	98,165	83,768	85,445

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