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Bacterial Disease Hits New Zealand Kiwifruit Industry

Report Categories:
Kiwifruit

Approved By:
Joe Carroll

Prepared By:
David Lee-Jones

Report Highlights:
A virulent bacterial canker disease has ravaged 26% of the kiwifruit orchards in New Zealand in 2011. As a result exports in 2012 will likely be reduced 22% to 324,000 tons from the strong production year in 2011, with exports expected to reach a record of 414,720 tons. There is no cure for the Psa(v) disease once it invades the kiwifruit plants' vascular system, but the industry is working very hard to come up with mitigation strategies to allow it to operate successfully in spite of the disease.

Executive Summary

After a decade of steadily increasing production and exports the New Zealand Kiwifruit sector has been hit by the disease PSA(v) a virulent isolate of a bacterial canker disease particular to the Actinidia species. After being identified in November 2010 Psa(v) has to date been confirmed in 868 orchards, 26% of the total number of kiwifruit orchards which comprise 35% (4,754ha) of total Kiwifruit area. The disease is centered in the main growing region of Te Puke in the Bay of Plenty province.

As a result, the export tonnage of kiwifruit in 2012 will take a big hit and at a forecast of 324,000 tons is likely to be 22% less than the 2011 year. This is a direct result of the production problems associated with the Psa(v) outbreak which will see up to 50% of the older Gold Kiwifruit variety (Hort16a) perish after contracting the disease in the 2010/2011 growing season. Total Production of kiwifruit in 2012 is likely to be down 21% and is estimated at 343,300 tons.

In contrast, the 2011 year was a boomer year for production, with average yields per hectare up close to 10% (from 2010) after a consistently good growing season. Coupled with a 300 hectare greater area harvested the result was total production up by 12% at 434,120 tons. This has translated directly to higher exports which are likely to grow by 13% compared with 2010, to reach a record 414,720 tons.

The success of the sector over the last 10 years initially began with the total control of flow of fruit on to world markets (excluding Australia) by Zespri on behalf the growers. After a shaky start due to fruit loss problems, Gold Kiwifruit has been a raging success for Zespri and the growers who purchased licenses to grow the limited supply variety. Nowhere is this more evident than with exports to Japan. In 2010 Japan took 17% of the total volume but returned 31% of the total value of all exports of kiwifruit. The volume of kiwifruit was kept at between 55,000 to 59,000 tons from 2004 to 2009, and only in 2010 did the volume rise to 61,000 tons.

Now with Psa(v) ravaging the Gold crop, Zespri may find marketing Green Kiwifruit more difficult than ever to maintain the price premiums it has enjoyed in the past even though the crop will be smaller.

The prognosis for the industry is not encouraging over the next 2 to 3 years with the effects of Psa(v) likely to further reduce the export volume in 2013 and perhaps even in 2014. There will be rationalization in the post-harvest sector over the next 2 years. However a serious, well funded and coordinated response to the incursion is being mounted. In the long run plant breeding is likely to be the key to living with the disease. Already more tolerant cultivars are being identified and it is likely that replanting/grafting over to one or two of these cultivars will start in 2012.

Production, Supply, & Distribution

Kiwifruit New Zealand (HA, MT)	2010			2011			2012		
	Market Year Begin: Jan 2010			Market Year Begin: Jan 2011			Market Year Begin: Jan 2012		
	USDA Official	New Post	% Change from last yr	USDA Official	New Post	% Change from last yr	USDA Official	New Post	% Change from last yr
Total Area Planted		13,600	2.4%		13,565	-0.3%		13,000	-4.2%
Area Harvested		12,750	1.6%		13,050	2.4%		12,000	-8.0%
Total Production		386,389	1.4%		434,120	12.4%		343,300	-20.9%
Imports		763	-22.1%		600	-21.4%		700	16.7%
Total Supply		387,152	1.3%		434,720	12.3%		344,000	-20.9%
Exports		**367,152**	**1.4%**		**414,720**	**13.0%**		**324,000**	**-21.9%**
Domestic Consumption		20,000	0.0%		20,000	0.0%		20,000	0.0%
Total Distribution		387,152	1.3%		434,720	12.3%		344,000	-20.9%
TS=TD		0			0			0	
Production Yield T/ha		30.3	-0.2%		33.3	9.8%		28.6	-14.0%

Production

2012 (Marketing Year is the Calendar Year)

From the boom year for production in 2011 it is forecast total production will drop significantly to 343,300 tons in 2012. This a 21% decline and is unprecedented in the new era of the Kiwifruit sector since ZESPRI International Limited was formed in 1997 as a global marketing organization, providing a single point of entry for the export of New Zealand grown kiwifruit. This calamitous reduction is a result of the following:

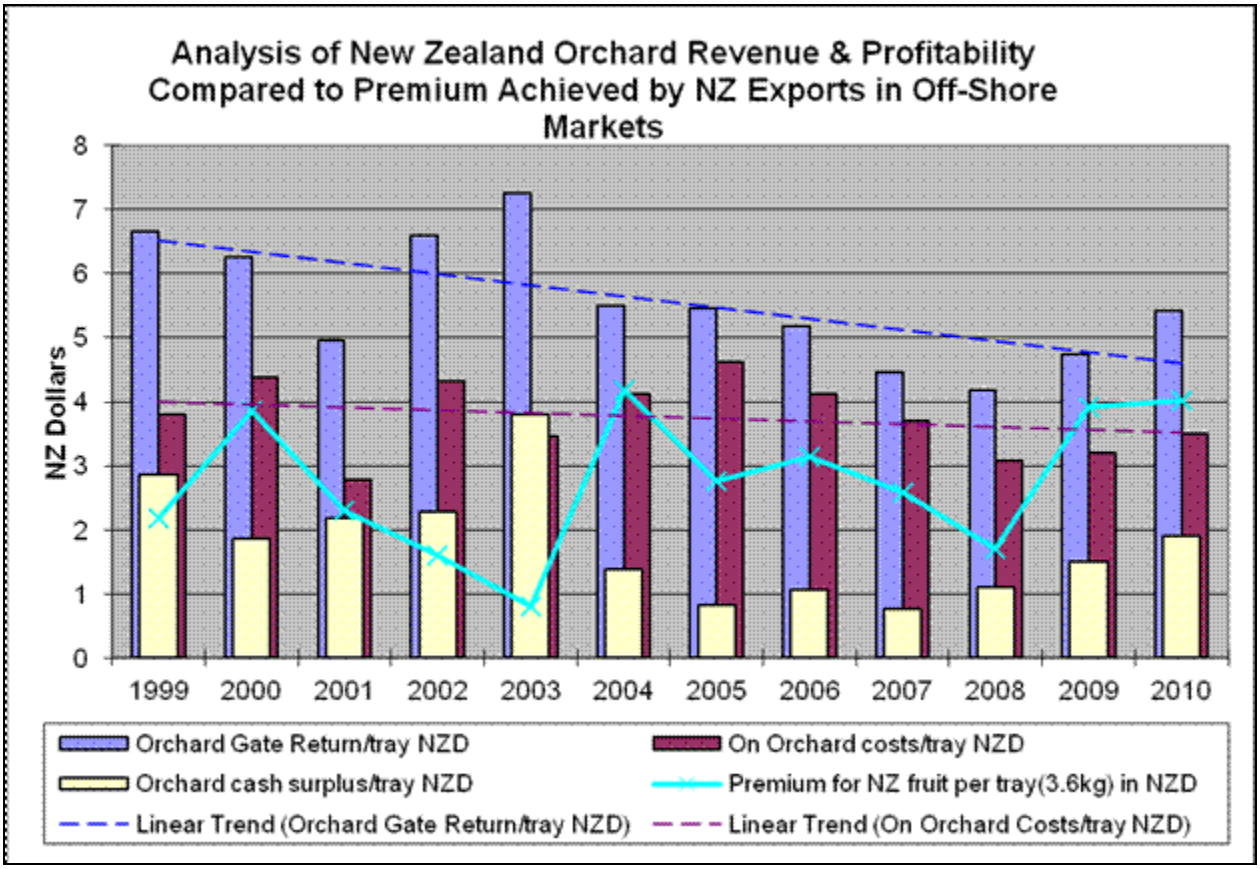
- Pseudomonas Syringae Actinidiae (Psa), a bacterial canker disease, more specifically a virulent isolate referred to as Psa(v) first identified in 2010. The disease has now been identified in 868 orchards, 26% of the total number of kiwifruit orchards which comprise 35% (4754ha) of total Kiwifruit area. Gold Kiwifruit (Hort 16A) plants which contract the disease are generally being killed by it.
- After the huge yields in 2010 there is a tendency for plants to have a bit of down year and bud rot was widespread during spring 2011 (September-October).

2011

Production in 2011 surpassed all expectations and was up 12% relative to the previous year at 434,120 tons. This was driven by:

- The harvested area being up approximately 300ha, an increase of over 2%, as plantings of new varieties provided marketable quantities of fruit.
- Good growing conditions throughout production season helped growers produce some of the best per hectare yields ever achieved.

While Psa(v) was detected in the 2010/2011 growing season, the spread was not sufficient to have any material effect on the overall production level.



Source: Global Trade Atlas; MAF Kiwifruit Monitoring Model (5ha orchard: 1ha Gold, 4ha Green)

Psa(v)

What is it?

The virulent isolate (v) of the bacterial canker disease Pseudomonas Syringae Actinidiae (Psa), commonly referred to as Psa(v) was first formally identified in New Zealand in November 2010. There are several lines of thought as to how it arrived in New Zealand but nothing has been confirmed. In Italy, Psa(v) (known as "Batterosi") has decimated the Gold orchards especially, since late last decade and has now spread to French Kiwifruit orchards in 2010. There is some conjecture as to whether Psa can be transferred on pollen, but mainly once established in an area, and is more likely thought to be transferred via Kiwifruit vegetative material, it is spread by aerosol on the wind and rain. There is some thought it may be able to survive for a short period on non host vegetation. While the bacteria might not be viably transferred on/in pollen there is a possibility it could be transferred on the traces of vegetation ground up when pollen is collected and processed to be used for non-bee mechanical pollination. In the past, pollen has been transferred both between growing regions and countries. It is also believed to be spread by footwear, vehicles and orchard tools.

In an orchard it can exist as:

- an epiphyte, living on plant surfaces without causing—high levels of—infection; (primary infection); and/or
- as an endophyte, living within the vine, having entered through natural plant openings or manmade wounds—resulting in severe infection; (secondary infection)

Growth of the bacteria outside/inside the vines can result in leaf spotting, cane/leader dieback and, in extreme cases, vine death accompanied by the production of exudates. The fruit is not known to carry the bacterium, nor are there any known impacts on animal or human health. There is no current cure for the disease

By late November 2011, 868 orchards in New Zealand had been confirmed with Psa(v), 26% of the total. This equates to 4,754 hectares or 35% of the total orchard area. So far nearly all of the confirmed cases have been in the Te Puke area with a few in the wider Bay of Plenty area. Gold Kiwifruit (Hort16a variety) has been affected more severely with most gold blocks which contract the disease exhibiting secondary infection symptoms resulting in plant death. This has necessitated the removal of plant material back to the graft or even complete plant removal roots and all. Considering that over 50% of the Hort16a area is concentrated around the Te Puke district, Gold Kiwifruit production is going to be curtailed significantly. During September and October 2011 many Green Kiwifruit (Hayward variety) blocks in Te Puke were becoming infected, but as the spring progressed most plants seemed to recover, much to the relief of the growers.

How is the sector dealing with it?

In contrast to the situation in Italy the reasonably centralized structure of the NZ industry around the exporter Zespri has meant that despite some complaints to the contrary communication lines to the growers have been kept short and timely. Growers have been kept up to date with new information or changes in best practices. In addition, the industry structure has allowed a more coordinated approach to the problem and it has spoken with one voice to the Government. The Government's response was swift and it would seem that bureaucratic procedures have not been allowed to slow down the response to the problem. One of the main problems is a lack of basic knowledge about the bacteria and while plenty of resources are being appropriated to the basic science work, it will take time to yield results.

The primary vehicle for dealing with the disease incursion has been the formation of a registered incorporated non-profit society Kiwifruit Vine Health Inc. KVH receives its funding of up to $50 million by a joint agreement between the Ministry of Agriculture and Forestry (MAF) and ZESPRI Group Ltd (ZESPRI). The funding burden is shared equally between MAF and ZESPRI to cover the costs of KVH's activities. KVH is now the main point of contact for the latest information for growers; coordinates the science effort; and works with government agencies with regards to such things as spray chemical registration.

The actual control activities being put into practice at the moment in orchards are:

- Control Zones
- Orchard Hygiene: Plant material transfer is being minimized, and orchardists are insisting on disinfecting footwear, equipment and machinery
- Chemical control: at present seven chemicals have been approved for use, which include: Disinfectants/Sterilants; Biological Controls; Elicitors; Coppers; and Antibiotics. To date, the problem with chemical control application has been by way of spraying and the chemicals only treat the surfaces of the plant; once the disease gets into the vascular system of the plant there is no satisfactory chemical control delivery mechanism.
- Plant removal incineration/destruction of infected plant material: Initially any orchards/blocks confirmed with the disease were condemned to having all plants removed and destroyed. But as the disease spread it was found that many plants will survive primary infection and it was not necessary to remove plants unless the secondary infection developed.

Longer term solutions are being worked on and they include:

- Plant breeding: The main plant breeding facility in Te Puke has encountered the disease. Over 100,000 new cultivars were being evaluated and many have succumbed to the disease. However it is now known that generally the Hayward variety (Green K-F) will survive the primary infection; and while Hort16a (Gold K-F) generally succumbs to the disease the newly released Gold variety "G3" seems to be surviving the primary infection. The newly released Green/Gold hybrid appears to have very good tolerance to the disease. As time goes by development of new tolerant/resistant cultivars will be key to overcoming the effects of the disease.
- Continuing evaluation of any chemicals or delivery mechanisms which may provide a control solution.
- Other ideas: for example bacteriophages (viruses that kill bacteria) are being isolated in an attempt to develop a control mechanism using a phage(s). A company in the US is helping with this quest.

What is the Prognosis for the Sector?

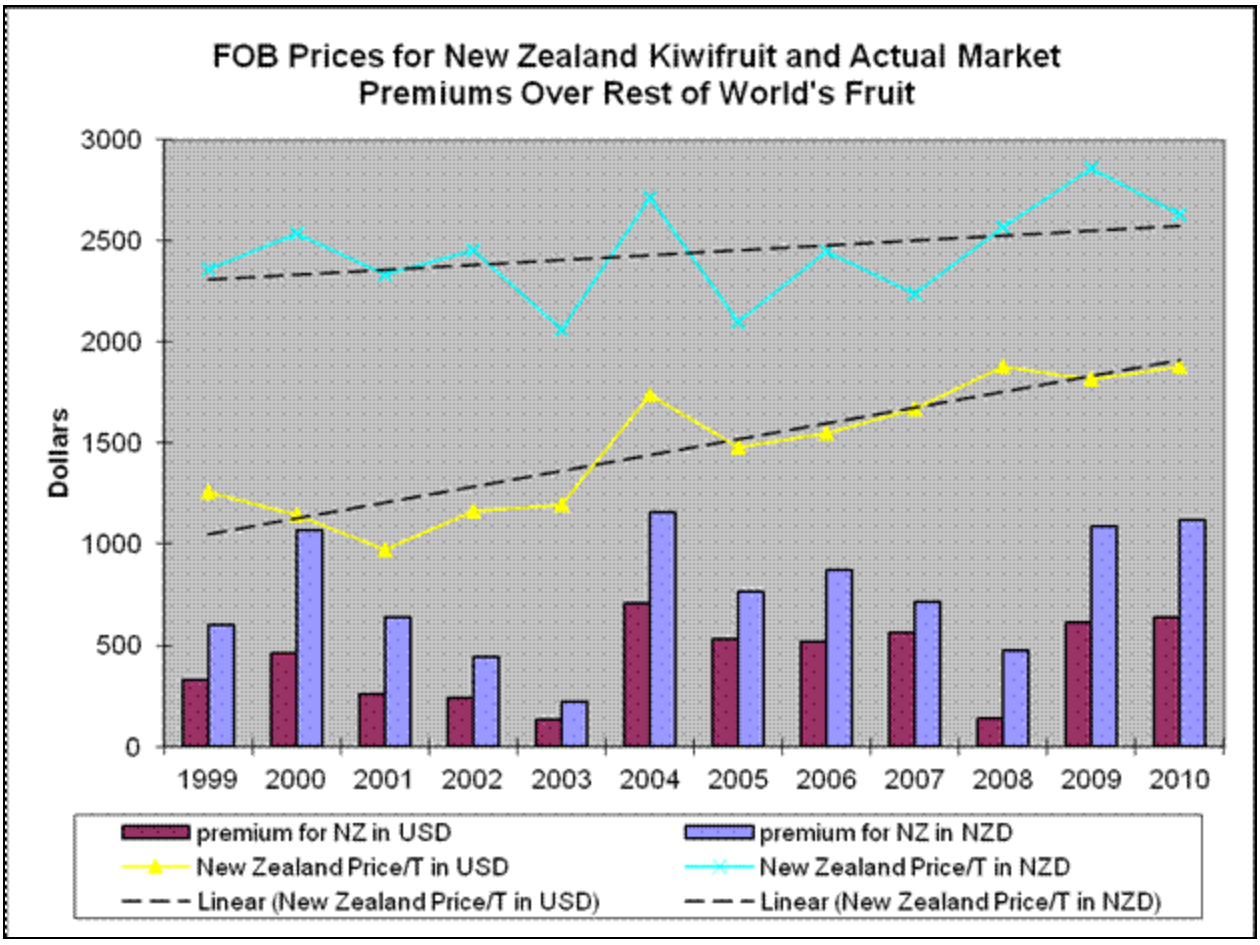
In 2012 it is likely that the effects of Psa(v) will reduce exports by 60-75,000 tons of an expected 90,000 ton reduction. While the industry will be making every effort to replace Hort16a (Gold Kiwifruit) plants with more resistant Gold cultivars as quickly as possible, even if substantial areas are replanted/grafted over in 2012 it will take several years for these plants to reach full yield. Kiwifruit Vine Health aims to have affected orchards back to viable production by 2015. However the sector is likely to lose more production to the disease before the various strategies to overcome the disease take hold. So it is likely that the export tonnages will continue to decline over the next two years.

The significant reduction to production is going to last for several years and will force some rationalization in the post harvest sector. Already two of the largest packing and coolstorage operators have completed merger negotiations which are waiting on shareholder ratification. It is likely there will be across the board discounting on packing charges in 2012 as packhouses scramble for throughput. As a result there will be some closures and mergers as the sector re-aligns itself. Zespri itself will rationalize its workforce on and off shore to align its costs with the new reality.

In terms of marketing, while having less crop should make it easier to sell, the Green crop will only be reduced by 5% perhaps 10% at most and it is by far, more difficult to sell and maintain pricing at a premium to other exporters/producers of kiwifruit. In the last few years Gold kiwifruit has been used to sell Green by allowing purchasers access to gold if they take a quantity of green as well. This will be very much more difficult to achieve with so much less Gold being available. It is hoped the new Green/Gold hybrid variety which is sweeter tasting will meet approval in Asia especially and substitute for Gold in the short term and lower paying Green in the longer term.

For more information go to: http://www.kvh.org.nz/

Trade & Exports



Source: Global Trade Atlas

2012

The industry is now working on reduced circumstances and it is expected that exports will reduce to 324,000 tons, a 22% fall from 2011. Because domestic consumption is considered to be relatively stable and imports negligible all the production losses resulting from Psa(v) plant infections will be translated directly through to the reduction in exports.

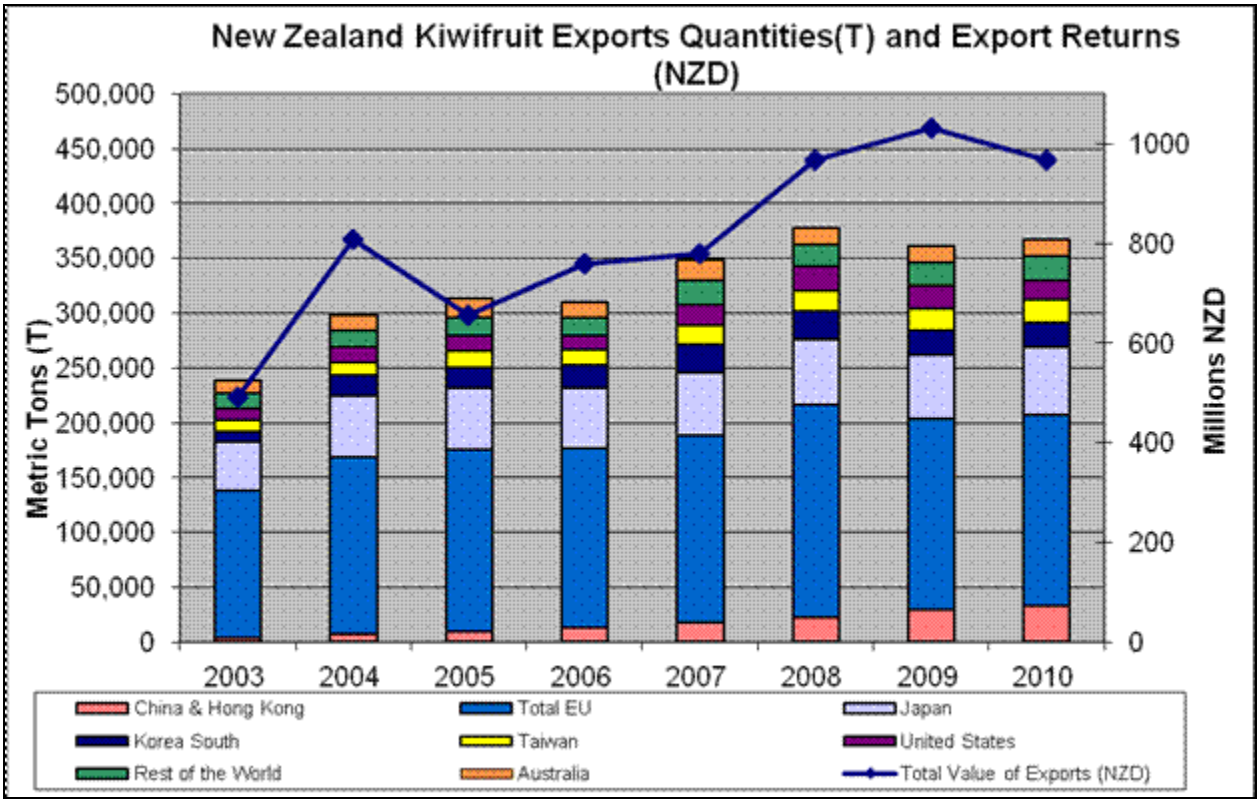
The crop reduction will allow Zespri to follow through with one marketing strategy to become less reliant on the E.U. In addition, lower supplies should stimulate prices. On the flip side however, world fruit markets remain competitive and having less fruit may just mean Zespri can reduce supply to the poorest paying markets.

Focus will still be maintained on the developing markets especially in Asia.

2011

Exports in 2011 are likely to reach 414,720 tons, 13% ahead of 2010. This record level of exports is directly the result of the great production season growers had in 2009/2010 as domestic consumption can be assumed to be stable and imports not material

at 600 tons.



Source: Global Trade Atlas

New Zealand Export Statistics To World				
Commodity: 081050, Kiwifruit, Fresh				
For Calendar Year:				
Commodity Description	2010			
	Quantity (tons)	% share	FOB value NZD	price NZD/T
Total for all Varieties	367,152		966,663,661	2,633
Green Kiwifruit	289,250	78.8%	640,429,370	2,214
Gold Kiwifruit	75,315	20.5%	320,197,354	4,251
Kiwifruit, Other Than Gold Or Green	2,587	0.7%	6,036,937	2,334

Source: Global Trade Atlas

Gold Kiwifruit have been relatively easy to sell because the supply has been limited by design. Zespri owns the rights to the variety and it has only licensed a limited area to be grown. In New Zealand this was approximately 2,600ha, or around 19-20% of total plantings. In addition, Zespri has licensed limited areas in the Northern Hemisphere. The limited quantity and distinctly different sweeter taste has also meant Zespri can price the fruit at a much higher price than the Green variety.

New Zealand Export Statistics To World								
Commodity: 081050, Kiwifruit, Fresh								
Year To Date: January - September								
Commodity Description	2010				2011			
	Quantity (tons)	% share	FOB value NZD	price NZD/T	Quantity (tons)	% share	FOB value NZD	price NZD/T
Total for all Varieties	344,048		891,998,110	2,593	366,533		946,119,585	2,581
Green Kiwifruit	266,917	77.6%	567,870,672	2,128	264,792	72.2%	546,063,788	2,062
Gold Kiwifruit	75,247	21.9%	319,989,925	4,253	99,945	27.3%	395,294,525	3,955
Kiwifruit, Other Than Gold Or Green	1,885	0.5%	4,137,513	2,195	1,797	0.5%	4,761,272	2,650

Source: Global Trade Atlas

One market that has been managed very well by Zespri is Japan which in 2010 took 16.7% by volume of the total exports but returned to New Zealand 30.8% of the total value earned. The volume placed in the market is carefully managed: from 2004 to 2009 total volumes were kept in a band between 55,000 tons to 59,000 tons. Only in 2010 did volume grow to 61,000 tons. In 2010 green kiwifruit averaged NZ$4,474/T for Japan versus approximately NZ$2,214/T for the whole world and gold kiwifruit averaged $5,433/T in Japan versus $4,251/T for the whole world. In addition the message that eating green kiwifruit is a very healthy addition to the diet is pushed very hard; and to cater for the Asian taste for sweeter fruit a substantially higher proportion of gold kiwifruit (39.2% of total volume to Japan) was shipped to this very high priced market.
For more information on Zespri go to: http://www.zespri.com/

Trade Policy and Other News

Turners & Growers (T&G) Attack on Zespri

Post has reported in previous GAIN reports on attempts by listed fruit processing; trading; and distribution company Turners & Growers to overturn the regulations controlling the export of Kiwifruit. After a PR campaign; advances to Government ministers; approaches to WTO members including the US failed T&G (itself undergoing a change of controlling ownership), has mounted legal attacks on Zespri. Five claims brought to the High Court against Zespri have been disallowed. While initially considering an appeal T&G has now decided not to go ahead with an appeal. In a separate action T&G are still going to pursue Zespri with claims under the Commerce Act.

Zespri fined NZ$500,000 for Anti-competitive Behavior in South Korea

In November 2011, Zespri, was fined half a million dollars for anti competitive behavior in the Korean market. The Korean Fair Trade Commission (KFTC) fined the company for hindering the domestic sale of kiwifruit.
The commission found that Zespri signed sales contracts with two major supermarket chains, which established Zespri as the sole supplier of Kiwifruit to them and excluded cheaper Chilean kiwifruit. It was alleged the Zespri contracts resulted in New Zealand kiwifruit prices rising 13 percent in the Korean market. New Zealand kiwifruit faces a 45% tariff upon entry to South Korea.