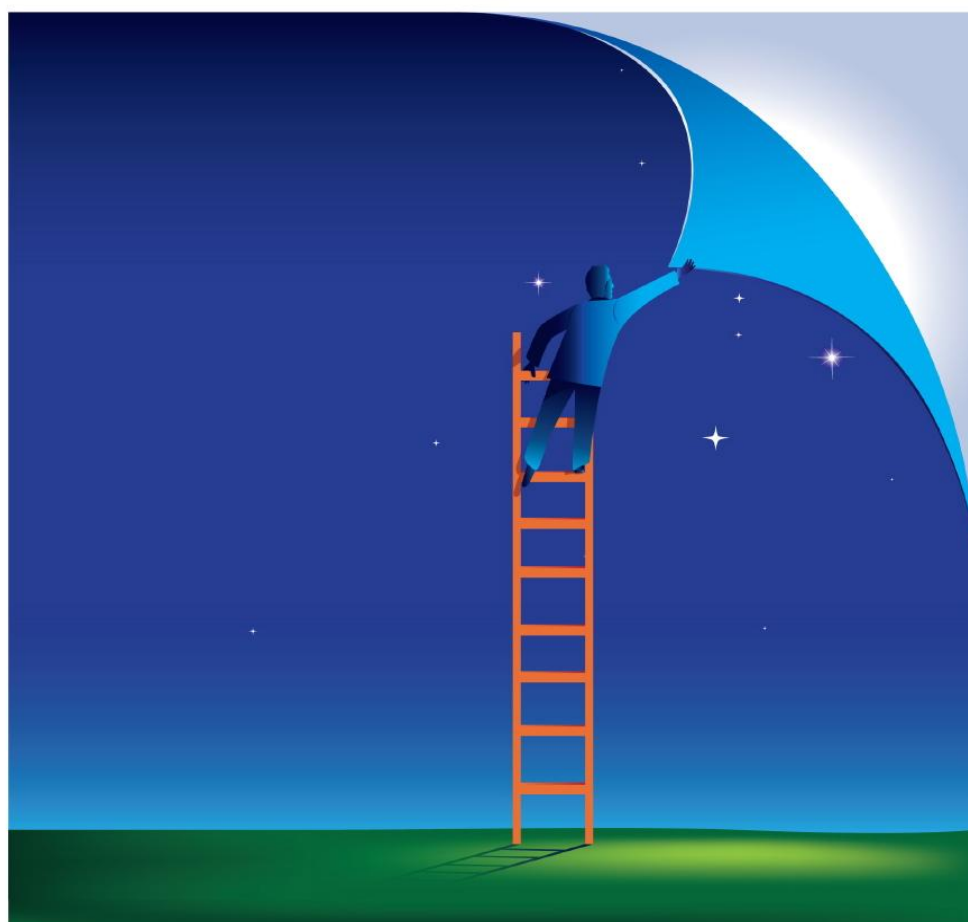


World Kiwifruit Review

2015 Edition



**A publication of Belrose, Inc.
Publishers of the World Apple Report**

1045 N.E. Creston Lane, Pullman, WA 99163, USA

Tel: (509)-332-1754 Fax: (509)-334-5209 Mobile: (509)-432-5258
E-mail: belrose@pullman.com Web site: www.e-belrose.com

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FOREWORD

Welcome to the eighteenth edition of the World Kiwifruit Review. The cover of last year's edition pictured a rollercoaster, reflecting the fear and hope that the world kiwifruit industry has gone through since virulent strains of the bacterial disease, *pseudomonas syringae* pv *actinidiae* (PSA), struck in late 2010. The cover of the current edition shows an industry on the rebound, preparing to unveil a new, more promising, chapter in its long success story.

The rebound has not been without pain. Growers have been forced to remove most plantings of the highly profitable yellow-flesh cultivar, Hort16A, and reduce plantings of many promising minor cultivars. In response, total kiwifruit planted area was temporarily reduced in many countries. However, with intense application of science to the PSA threat, the industry has found ways to limit the rate of infection, and to treat the infections that continue to occur by altering cultural and harvest practices and adapting chemical treatments. It has also rapidly introduced newer cultivars that appear to be less susceptible to damage from PSA. A key player in this recovery has been Plant and Food Research in New Zealand that was able to speed up the commercialization of cultivars it had in its development pipeline. The cultivar with the greatest potential appears to be yellow-flesh Gold3, which will be marketed as Zespri™ Sungold.

One unexpected benefit of the reduction in overall kiwifruit supplies was that returns to growers increased substantially, enabling many to replant to the newer cultivars. Higher prices made kiwifruit growers and investors more optimistic about the future of their kiwifruit enterprises and led to a strong rebound in the price of land suitable for kiwifruit production. However, the recovery of the global kiwifruit industry is still a work in progress. Variants of PSA are still a threat. Numerous potential minefields lie ahead in growing, harvesting and marketing the new cultivars alongside the industry stalwart, green Hayward. This Review is intended to help readers understand recent developments and future challenges as the kiwifruit industry continues its recovery.

Desmond O'Rourke
President, Belrose, Inc.

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Emerging from the PSA Crisis

The crisis that was to grip the world kiwifruit industry began quietly in isolated plantings of Hort 16A in Italy. As part of its global sourcing plan, the Zespri organization from New Zealand had licensed limited production of the cultivar in other countries. However, in some Italian sites, the cultivar did not flourish as it had in New Zealand. Scientists took several years to recognize that the problem was not due solely to differences in Italian soil, climate or cultural practices, but that a major contributor was a little-known bacterial infection. The setback slowed, but did not derail, Zespri's long-term global sourcing plan.

In late 2010, the bacteria, *psuedomonas syringae* pv *actinidiae* (PSA), was detected for the first time in the Bay of Plenty, New Zealand's premier kiwifruit production area. Infections spread rapidly from orchard to orchard. Within one year, over 40 percent of the kiwifruit orchards in the Bay of Plenty were infected. The semi-tropical climate, high humidity, and intensive kiwifruit plantings provided ideal conditions for the rapid spread of PSA.

While Hayward and other cultivars were infected, the infections were particularly devastating to the Hort16A cultivar. The Zespri organization in New Zealand had carefully controlled expansion of licenses for production of Hort 16A to maintain prices. Supplies were geared to grow at the same pace as demand for the cultivar could be expanded around the world. By 2010, Hort 16A, sold under the trade name, Zespri™ Gold, had achieved above average yields of marketable product and a rising premium in international markets. It returned by far the greatest profit per hectare for New Zealand's kiwifruit growers, and was contributing 30 percent of the Zespri organization's global sales.

In response to the outbreak of PSA, the kiwifruit industry and the government of New Zealand rallied to eradicate the disease. A new organization, Kiwifruit Vine Health, was established, to monitor the outbreak and coordinate efforts at containment and treatment. Research and extension scientists from many disciplines redirected their focus to better understand and fight the bacteria. Within a few months of the first outbreak of PSA in New Zealand, there was widespread realization that, given the current control methods available, the Hort 16A cultivar could not be saved. While some productive orchards remained as recently as 2014, most Hort 16A plantings in New Zealand have been removed.

The disease had a severe economic impact on the New Zealand kiwifruit industry. Many producers had to remove substantial acreage and faced reduced productivity on other acreage. This indirectly affected workers and firms supplying goods and services to the kiwifruit industry. Many producers faced mounting debts as their incomes suffered. An analysis by Glen Greer and Caroline Saunders of Lincoln University in 2012 estimated that "PSA-V is expected to cost the kiwifruit industry between \$310 and \$410 million in present value terms over the next five years." The losses to PSA were significant in other major producing countries, but were not on the scale experienced in New Zealand.

The New Zealand kiwifruit industry also rapidly reached a consensus that it needed a new golden cultivar to fill the market segment left by Hort 16A. Fortunately, a number of golden cultivars had been developed by Plant and Food Research and were already in Zespri's commercialization pipeline. The New Zealand government established a \$25 million fund to help producers speed up the planting, production and marketing of these new cultivars.

One of these cultivars, G3, has emerged as least susceptible to PSA, and as most likely to be acceptable as a substitute for Zespri™ Gold in international markets. Marketed under the Zespri™ Sungold label, it has been assigned a key role in the recovery program for the New Zealand kiwifruit industry. Producers were granted licenses to grow G3 both on a one for one exchange for each hectare of existing Hort 16A removed, and, in addition, many new licenses for G3 were issued. By the end of 2013, over 4,000 hectares of G3 were licensed in New Zealand. The plan was for production of G3 to replace lost sales of Hort 16A by 2015.

Since 2010, the PSA epidemic has reached every major growing region in the world, and has infected many cultivars, especially golden ones. Most golden production has been eliminated in Italy. Producers in Chile, France, Spain, Portugal, South Korea and Japan have faced variants of the bacteria. While golden cultivars have been more susceptible, some plantings of Hayward and other green cultivars have also been affected. Containment and treatment programs slowed the spread of the bacteria, but production volumes were reduced.

The PSA strain found in New Zealand has been traced to China. There is evidence that it has affected Chinese orchards, but that it has not severely disrupted

production there. There is still little agreement on how the bacteria evaded quarantine restrictions and got transmitted across international borders.

While the disease has imposed severe economic losses on the affected producers, it has had the perverse, short-term effect of leading to higher prices both for the surviving golden cultivars and for green cultivars, especially the dominant Hayward variety. In general, retailers and consumers had not seen any impact on the quality of the kiwifruit reaching the market, and there was no perceived threat to food safety or human health. As a result, markets have continued to demand the same volume of kiwifruit supplies at the same time that PSA was reducing supplies. At least temporarily, global market demand exceeded supply and drove up prices across the board for product that could be marketed.

To some extent, rising prices compensated individual producers for the loss of volume. The extent of the compensation depended on how much losses each producer had suffered. Higher prices allowed many producers to replenish their lost capital. It brought back a sense of optimism within the industry, encouraged producers to replant, and helped restore the capital value of land suitable for kiwifruit production. Together, these factors brought widespread support for the kiwifruit industry's recovery plans.

In the case of New Zealand, the total volume of trays sold from New Zealand continued to rise from 98.1 million in 2010-11 to 109.1 million in 2011-12, but fell in the next two seasons, to 101.3 million in 2012-13 and 86.1 million in 2013-14 as the damage from PSA-V became more widespread. That is, the volume in 2013-14 was 22 million trays (21 percent) below the peak in 2011-12. The value of kiwifruit sales from New Zealand rose from NZ\$1.505 billion in 2010-11 to NZ\$1.522 billion in 2011-12, but fell to NZ\$1.443 billion in 2012-13 and NZ\$1.205 billion in 2013-14. The fall in volume was offset somewhat by strong price increases for the remaining green and gold varieties. Prices for Zespri™ Gold set new records as sales tumbled from 29.1 million trays in 2011-12 to 11.1 million in 2013-14.

The relatively favorable trends in kiwifruit prices and in land values have encouraged New Zealand growers to invest in the recovery plan outlined by the Zespri organization. Present plans are to expand Gold3 (Zespri™ Sungold) volume to 30 million trays in 2015 and 60 million trays by 2018. Another goal is to maintain prices by expanding demand ahead of the growth in supplies using

similar techniques to those used as sales of Zespri™ Gold were being gradually expanded. It is expected that the volume of green kiwifruit will be maintained close to present levels, and that the global sourcing strategy will be continued.

None of the other major producing countries, including Italy, Chile and France, suffered the level of impact that New Zealand experienced from PSA, although volumes were reduced somewhat. All three enjoyed strong price recoveries in the 2013-14 season that has made them more optimistic about the future of the kiwifruit industry in their countries.

The prospects for recovery in the global kiwifruit industry remain bright. During the period when PSA was causing most damage in supply regions, the kiwifruit category suffered no loss of reputation in major markets. Clearly, many retail buyers and consumers were disappointed in the volumes of their favorite cultivars (especially Zespri™ Gold) that they were able to buy, and at the elevated prices. However, no new substitute products emerged to challenge the kiwifruit in its unique category. This suggests that the kiwifruit industry can return to its former growth trajectory in the next few years, assuming that the present PSA epidemic can be controlled and that no new mutations of the bacteria emerge to threaten kiwifruit plant health.

As the PSA-induced crisis recedes, the global kiwifruit industry will again need to address the challenges of producing and marketing a specialty fruit in a changing marketing environment. The first challenge is that consumers in many developed countries are still struggling with the effects of the Great Recession that began in 2008, and with the halting rate of recovery. In many countries, real per capita incomes in 2014 remained below the levels of 2007, before the Great Recession began. The rate of unemployment remains high. Many workers have suffered prolonged periods of unemployment. Younger workers have been particularly affected. Marriage rates, birth rates, and rates of voluntary immigration have all slowed, reducing the potential population of consumers.

Many consumers have become more thrifty, increasingly conscious of relative prices of items, and of value for money. They have become more judicious in their shopping habits, and increasingly patronize limited assortment discount chains, like Aldi and Lidl, that emphasize quality at low prices.

Continued growth in emerging markets, particularly China, has led many in the kiwifruit industry to believe that stagnant markets in the developed world can be easily replaced in the developing world. However, many of the best prospects, such as Russia, Brazil, and numerous oil-producing countries, are now facing their own economic headwinds, both from falling prices of their major exports and from weakness in their currencies.

The retail food business in the developed world has had to rethink many of the strategies that were successful during the period of affluence prior to the Great Recession. That environment led many retailers to increase the number and size of outlets. Floor space equal to many football fields was not uncommon. One result was a steady increase in the total space available for produce in grocery stores, and an increase in the number of produce categories, and of individual produce stock keeping units (SKUs), that grocers were willing to handle. When the Recession hit and the lure of shopping fell, the system had serious overcapacity. Even the world's leading food retailers, like Walmart, Carrefour and Tesco, were forced to withdraw from many markets. Many weaker retail food chains either went bankrupt, or were absorbed into stronger firms.

The Recession and its aftermath also widened the divide between higher income consumers, and those in the middle and lower income groups. In general, higher income groups suffered least from unemployment during the Recession and benefited most from the rebound in the value of housing and equities during the economic recovery. They fairly rapidly resumed their patronage of premium products and upscale stores. In contrast, those in the lower income categories continued to be hardest hit by unemployment and saw their real incomes remain depressed. Many of them diverted more of their shopping to limited assortment discount stores. Companies like Aldi and Lidl steadily increased their share of the retail food market. Many of the traditional supermarket chains lost market share as they were squeezed between the upscale and discount stores.

The changed environment caused many major retail food chains to rethink their competitive strategies. First, they adjusted their pricing strategies to become more price competitive with the discounters. Second, they reduced their emphasis on building more large stores, and increased the proportion of small-footprint stores in their portfolio. Many of these smaller stores will have dramatically smaller total footprints and will, of necessity, have less space

devoted to produce. Retail buyers will have to be even more merciless in deciding which produce categories to stock and how many SKUs in each category to stock. SKUs will increasingly be assessed on the basis of the sales or gross margins they generate per foot of shelf space, or on the amount of related business their presence generates.

In the case of kiwifruit SKUs, a key question will be what other product purchases can be linked with shoppers who buy kiwifruit. For individual kiwifruit SKUs, the retail buyer will have to assess how many different countries of origin should be represented at any time, how many different sizes of kiwifruit should be stocked, how many varieties, and how many brands. The quality of the different kiwifruit offerings, the value for money they represent, and the promotional support they can offer, will become part of the buyer's decision making process.

In summary, while it appears that the kiwifruit industry is beginning to emerge from the PSA crisis, its future prospects will be heavily affected by the changing retail and consumer environment around the world.

Many of these issues will be explored further in subsequent chapters of the World Kiwifruit Review -2015. For the convenience of readers, the Review is divided into seven main chapters:

1. Production of Kiwifruit.
2. Trade in Fresh Kiwifruit.
3. Consumption of Fresh Kiwifruit.
4. Prices of Fresh Kiwifruit.
5. Analyzing Demand for Fresh Kiwifruit.
6. Marketing Initiatives.
7. Strategic Issues.

Each chapter looks back at past trends, and looks forward to emerging trends that have the potential to alter the path of the global kiwifruit industry. International, national, regional and local forces for change are examined. Every effort has been made to ensure the accuracy of the data provided, to present it in an easily-readable form, and to note inconsistencies. We hope that the resulting document will help key executives in the kiwifruit industry cope better with the challenges that lie ahead.

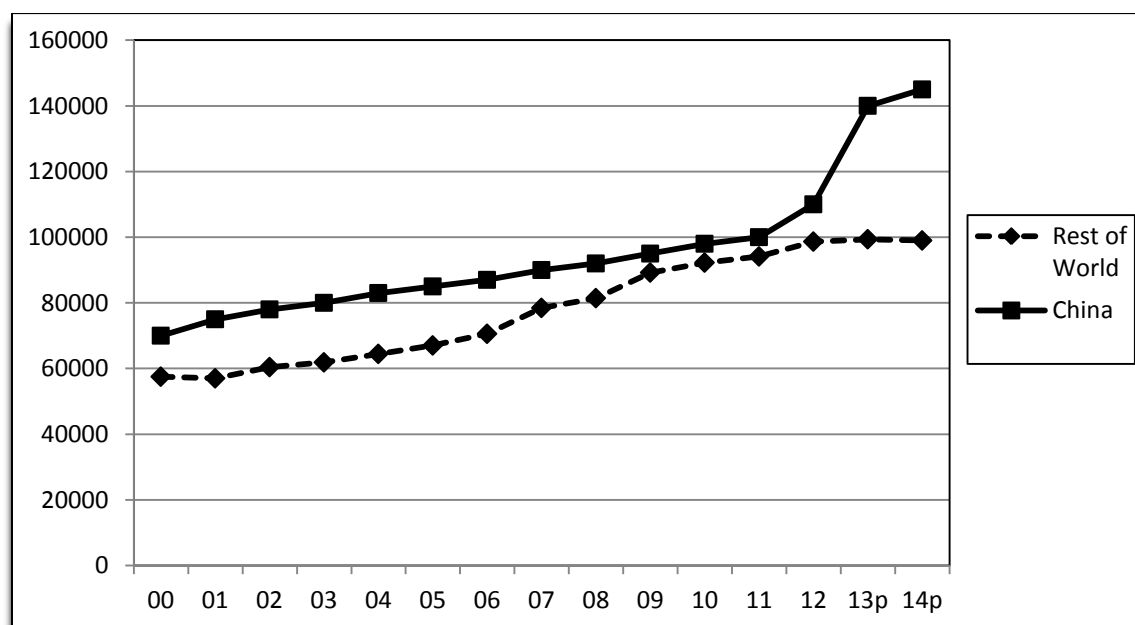
1. Production of Kiwifruit

Productive Potential Still Rising

The Food and Agriculture Organization of the United Nations (UN,FAO) has just issued a major revision of its data on kiwifruit area and production in China. It shows total kiwifruit area in China has consistently been greater than that of the rest of the world, and shot upwards in 2013, showing no significant effects from PSA. As best can be ascertained, the productive potential of the kiwifruit industry in the rest of the world has been slowed, but not reversed, by the onset of PSA. The industry in Chile has continued to expand, while the New Zealand industry, although heavily impacted by PSA, has been able to make very rapid adjustments to substitute new golden cultivars for the doomed Hort16A.

Among the three major kiwifruit producers in Europe, Italy and France appear to have been negatively affected by numerous factors in addition to PSA that have halted growth. In contrast, the industry in Greece has continued to expand despite the numerous economic problems that country has faced. There have also been new plantings of kiwifruit in several producing countries not covered in UN,FAO statistics, such as Argentina and Brazil.

World: Area Harvested of Kiwifruit, 2000-2014
(hectares)

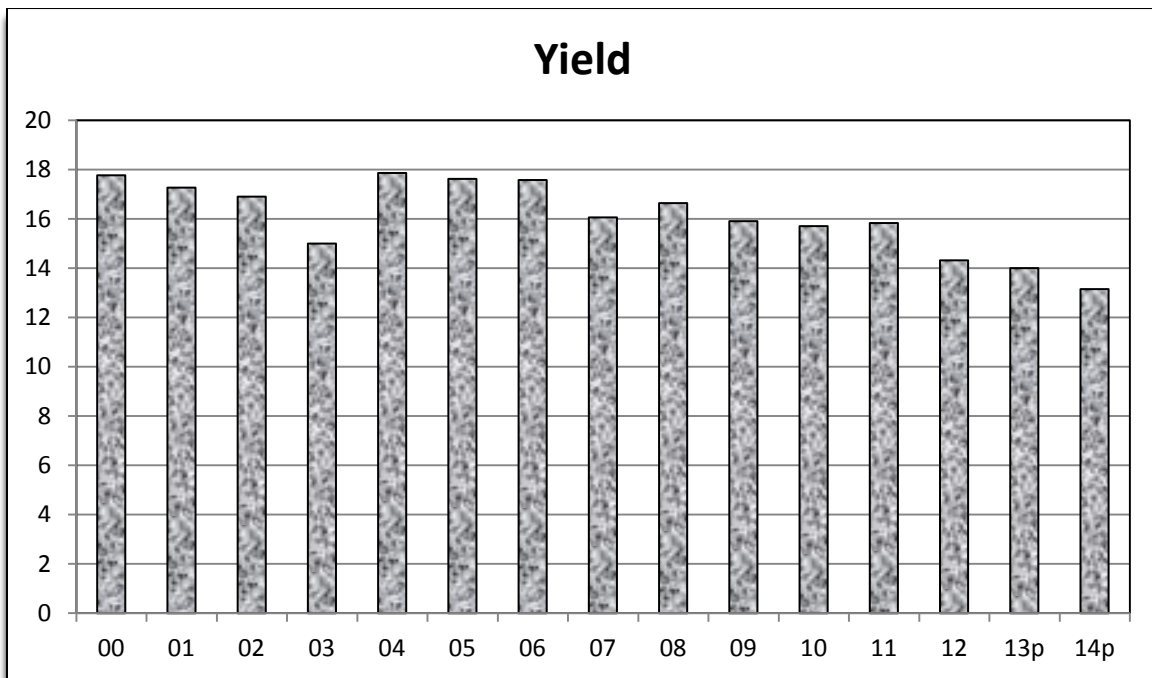


Average Yields outside China Still Declining

Even prior to the advent of PSA, average yields of kiwifruit had been declining since 2004. Most of that decline was related to the steady addition of new plantings since the late 1990s. This meant that a higher proportion of planted acreage was either non-bearing or had not reached its maximum potential. This effect is difficult to measure since the path of an orchard to full bearing is affected by differences in cultivar planted, orchard sites and management systems.

However, since 2010, PSA has played a part in declining yields. A substantial share of mature acreage was removed, and surviving acreage suffered different levels of damage from PSA, or from efforts to reduce the effects of PSA. Much of the new golden kiwifruit acreage that replaced Hort 16A will take several years to reach full maturity. As a result, average yields are likely to remain below historical averages for some time.

World, excluding China: Average Kiwifruit Yields, 2000-2014 (metric tons per hectare)

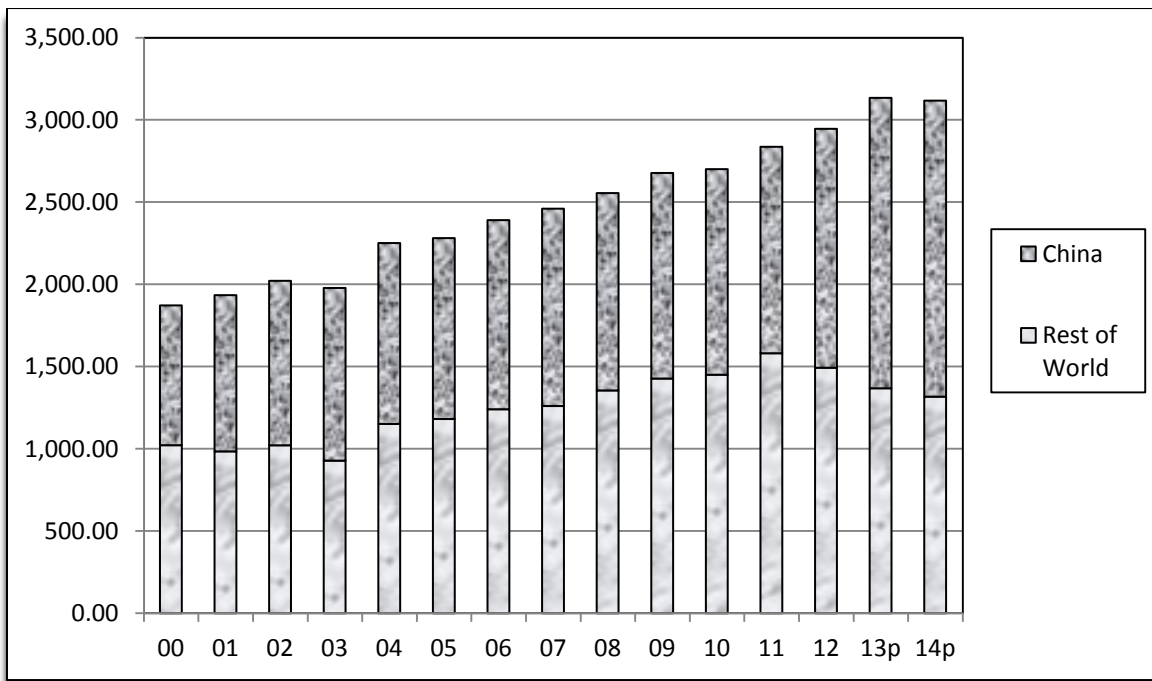


Setback to World Kiwifruit Production

Between 2003 and 2011, world production of kiwifruit continued a steady upward march. Revised statistics available from UN,FAO and the International Kiwifruit Organization (IKO) show steady growth in production in both China and the Rest of the World in that period. Total world production went from about 2 million metric tons in 2003 to 2.83 million in 2011, an increase of over 40 percent. Production in China grew by 20 percent, that in the rest of the world by 70 percent, still a remarkable increase. By 2011, production in China had reached 1.255 million metric tons, and that in the rest of the world about 1.6 million metric tons.

Since 2011, production of kiwifruit in China has continued its rapid growth, while that in the rest of the world is estimated to have fallen by almost 17 percent between 2011 and 2014, partly due to damage from PSA. Some fluctuations in production can also be caused by alternating bearing tendencies or by weather damage. Total world production may have dipped modestly in 2014. Production in the rest of the world can be expected to rebound in the next few years.

World: Production of Kiwifruit, 2000-2014 (1,000 metric tons)



Kiwifruit's Modest Role Among Fruits

The kiwifruit holds a small, but growing niche in the global fruit market. The table below shows world average per capita production of major fruit categories for three three-year periods, 1990-92, 2000-02 and 2010-12. It was drawn from the most recent UN, FAOSTAT data. In 2010-12, per capita production of all fruits and melons topped 108 kilograms, over 89 kilograms for all fruit and over 19 kilograms for all melons. Per capita production of kiwifruit accounted for less than one quarter of one percent of all fruit in 2010-12.

World: Per Capita Supplies of Major Fruit Groups and of Melons, 1990-92, 2000-02 and 2010-12

Fruit Category	1990-1992 (kg)	2000-2002 (kg)	2010-2012 (kg)	00-02 v 90-92 (% change)	10-12 v 00-02 (% change)
Apples	7.73	9.27	10.63	+ 19.9	+ 14.7
Other Deciduous	6.06	7.76	9.70	+ 28.1	+ 25.0
Total Deciduous	13.79	17.03	20.33	+ 23.3	+ 19.4
Total Grapes	10.92	10.10	9.74	- 7.5	- 3.0
Total Kiwifruit	0.16	0.16	0.21	+ 0.0	+ 31.3
Oranges	9.67	9.99	9.96	+ 3.3	- 0.3
Other Citrus	5.43	7.05	8.61	+ 29.8	+ 22.1
Total Citrus	15.10	17.04	18.57	+ 12.8	+ 9.0
Bananas	9.05	10.82	14.95	+ 19.6	+ 38.2
Other Tropical	14.33	16.35	19.76	+ 14.1	+ 20.9
Total Tropical	23.38	27.17	34.71	+ 16.2	+ 27.8
Other Fresh Fruit	2.78	3.77	4.36	+ 35.6	+ 15.6
Total Berries	0.77	0.93	1.08	+ 20.8	+ 16.1
TOTAL FRUIT	66.90	76.22	89.02	+ 13.9	+ 16.8
Total Melons	9.16	16.58	19.29	+ 81.0	+ 16.3

There has been strong growth in per capita production of most fruit categories. The absolute volume produced per capita increased for all categories except two of the traditional favorites, grapes and oranges. Production of grapes has been hit by the challenges in the wine category, including numerous prohibitions, and competition from the growing popularity of other alcoholic beverages. Oranges have faced heightened competition from rival, more novel, citrus fruits.

Per capita production of all fruit achieved the rare feat of growing faster in the most recent decade than in the previous decade. The pace of growth quickened in only in three categories, bananas, other tropical fruits and kiwifruit, but that offset slower growth in other categories. The rate of increase in per capita production of kiwifruit over the two decades was slightly lower than the average for all fruits, since per capita production of kiwifruit had been static between 1990-92 and 2000-02. The FAOSTAT data used here did not include Chinese production of kiwifruit. Were that to be included, kiwifruit production would still have been less than one third of a percent of world fruit production in 2010-12.

The relative share of kiwifruit in the world fruit complex is not likely to grow much between 2015 and 2020 as the kiwifruit industry will take time to overcome the setbacks caused by the PSA epidemic. However, during the next five years, the total volume of fruit entering the world market is likely to continue to increase. More and more of the production of fruits is in the hands of large, well-financed operators that have concentrated production in high-density plantings with the twin aims of generating higher production earlier in the life of new orchards or plantations, and higher average production over the useful life of the plantings.

Many national and international development agencies have funded fruit production projects that follow similar principles. They have recognized that they can generate much greater total revenues and jobs in rural areas by planting perennial fruit crops rather than annual crops like cereals or oilseeds. Likewise, individual farmers can generate much higher incomes from a smaller acreage planted to fruit crops.

On the demand side, recent past trends have favored increased purchases of fruits. From parents of young children, to the middle aged, to the elderly, consumers have become much more concerned about improving personal health and fitness, slowing the aging process, and warding off diseases like arteriosclerosis, diabetes, cancer and Alzheimer's. Medical authorities and nutritionists have encouraged politicians, educators, journalists and other influential persons to extol the important role fruit consumption can play in meeting personal and societal health goals. Upper income consumers have been in the lead in incorporating more fruits into their diets. For them, prevailing prices of fruit are not an impediment to increased consumption. However, for many lower income consumers, the perception remains widespread that fruits are expensive relative to other manufactured snacks and beverages. If that perception could be changed, demand for fruit in the developed world would grow even faster.

In the developed world, much of which enjoys temperate climates, demand has been growing steadily for tropical and exotic fruits that have not previously been widely available. That demand has been facilitated by improvements in harvesting, storing and transportation of fruits grown in the tropics that are often highly perishable. It has been enabled by the greater availability of these fruits on retail shelves for prolonged periods of each year, and by increased knowledge among retail employees of how to condition and handle these products more effectively. In addition, celebrity chefs have used their increased prominence in newspapers and magazines, on television, and on the internet to promote the inclusion of unusual ingredients in their recipes. Together, these chefs have millions of followers that follow their appearances and buy their publications.

In the developing world, much of which enjoys tropical or semi-tropical climates, rising incomes have increased overall demand for fruit, while consumers with higher incomes have been the leaders in demanding temperate fruits that were not previously widely available. As incomes increase further, demand is likely to shift from focus on cheaper fruits, like apples and pears, to focus on more expensive fruits like kiwifruit, sweet cherries, stone fruits and berries.

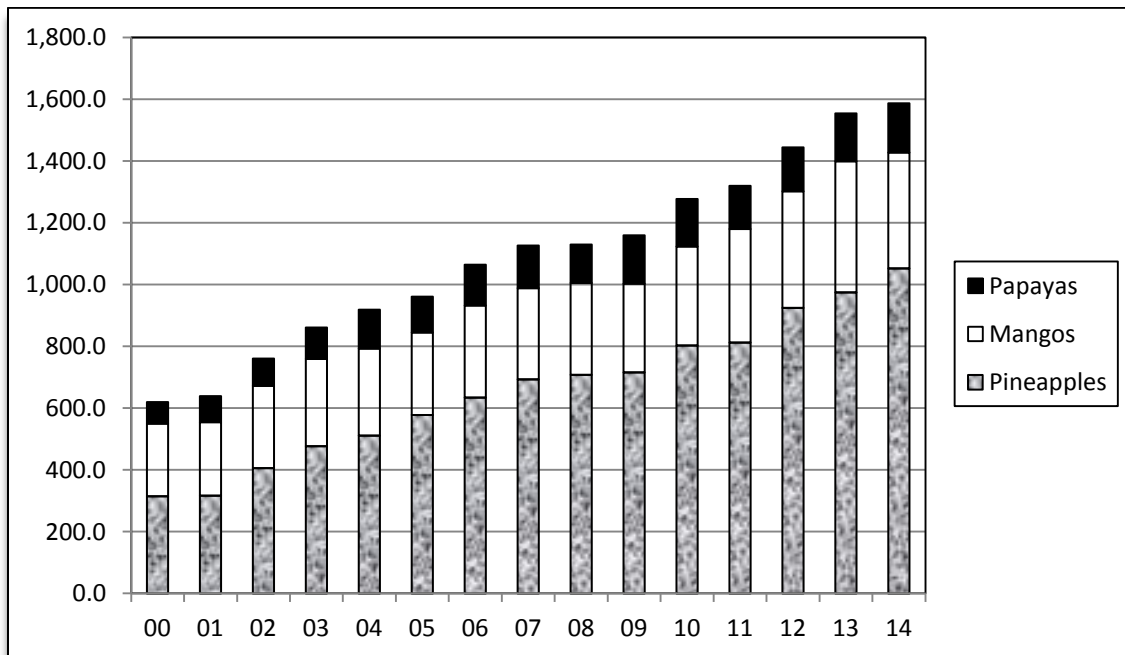
However, increased supply and demand for all fruits is no guarantee that kiwifruit will benefit particularly. A number of other trends could cause problems for kiwifruit. The first challenge comes in the health arena where many self-styled experts have been promoting selected foods as "super foods" or "super fruits." The major criterion for being classified as a super fruit appears to be the beneficial effects that can be claimed for consuming small quantities of the fruit. Touted super fruits range from the familiar blueberries to the little known Acai berries. It often appears that a new claim for a super fruit is added every month. Kiwifruit has the constituents to make its own claim as a super fruit. However, it has yet to receive the blessing of one of the more prestigious food gurus. Consumers continue to find it difficult to separate scientifically valid claims for any super fruit from those that are bogus. Until such claims can be more rigorously tested, consumers are most likely to be influenced by the advocates that garner the most publicity.

Other social trends are affecting the demand for a wider array of fruits. Large bodies of immigrants in many developed countries have brought with them cooking and eating habits that include fruits from other climes. The growth of international tourism has exposed more travelers to unfamiliar fruits. Self-help magazines, mostly aimed at females, show how to store, prepare and serve unfamiliar fruits.

Another influential factor in choice of fruits is the time pressure under which consumers increasingly operate, and their increasing mobility. In urban societies, consumers spend more time in travelling to work, school, shopping or recreation for themselves and their families, and less time eating cooked meals at home. This means that eating frequently occurs during other activities at home or in a car, bus or train. Thus, it is less easy and convenient to require any food preparation or any unnecessary disposal of waste. This situation favors bite-size fruits, such as blueberries or seedless table grapes, that can be eaten whole and leave minimum residues. It works against fruits like apples, oranges or peaches that make a mess while being eaten, or leave large residues for disposal. In the case of kiwifruit, a spoon or other utensil may be needed for eating, and juicy spills are almost inevitable. Fruit marketers have sought to overcome these problems by providing fruits in convenient packs, for example, sliced apples. However, such pre-prepared packs do not work well for fruits like oranges or kiwifruit.

The next two charts show the growing acceptance of three major fruits, fresh pineapples, fresh mangos and fresh papayas, in two major markets, the European Union of 28 members (EU-28) and the United States. They show the volume of imports for these three fruits by calendar year, between 2000 and 2014.

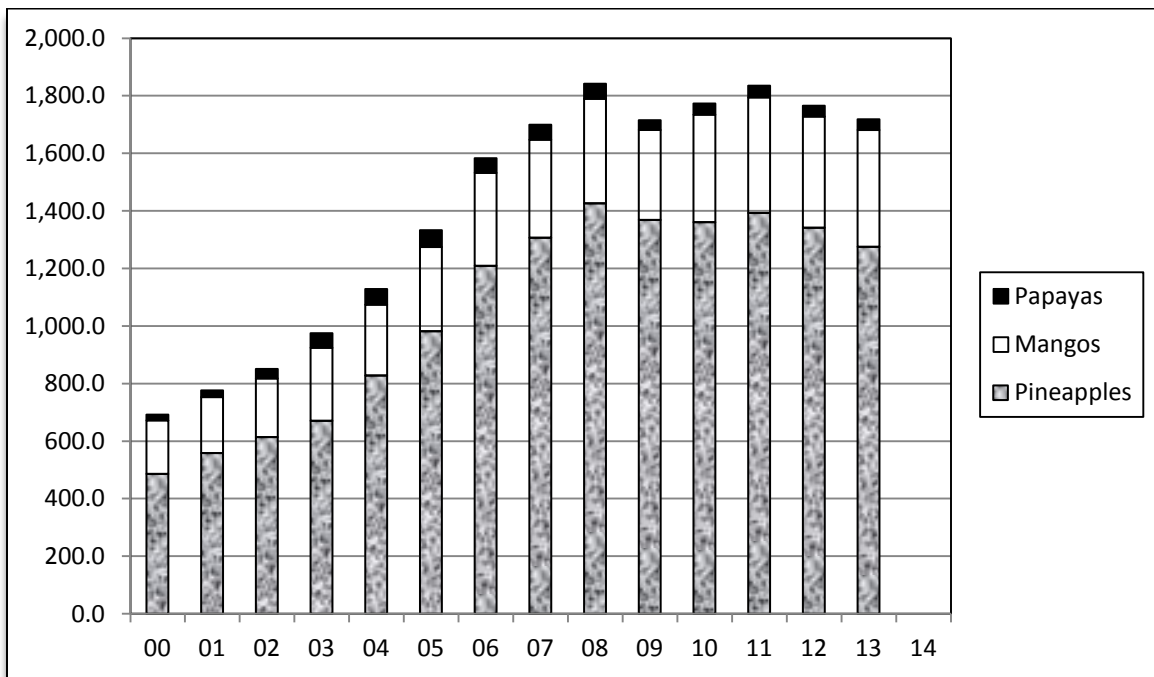
United States: Imports of Fresh Pineapples, Mangos and Papayas, 2000-2014 (1,000 metric tons)



In the United States, the long-term growth in imports of these three tropical fruits has been impressive. Combined imports in 2014 were more than 2.5 times the level in the year 2000. The fastest growth was for fresh pineapples (up 234%), followed by fresh papayas (up 128%). That for fresh mangos was up by (only) 60%. Growth stalled somewhat during the Great Recession and financial crisis in 2008-09, but has resumed since.

Experience in the EU-28 has been somewhat different. As in the United States, imports of all three fresh tropical fruits soared between 2000 and 2008, but they have generally remained below 2008 levels in subsequent years. Imports of fresh pineapples fell 10 percent between 2008 and 2013, while those of fresh papayas fell by almost 30 percent. Surprisingly, imports of fresh mangos set new records in 2011 and 2013, and remained more than double the level of imports in the year 2000. The slowdown in EU-28 imports is not surprising given the frequent setbacks to economic recovery that many member countries of the EU-28 have suffered since 2008. Clearly, imports of higher-priced imported tropical fresh fruits remain quite sensitive to the prosperity of the general economy.

EU-28: Imports of Fresh Pineapples, Mangos and Papayas, 2000-2014 (1,000 metric tons)



Leading Kiwifruit Producing Countries

The table on the next page shows estimates of the top ten kiwifruit producing countries ranked by average tonnage in the three most recent seasons, 2012-13, 2013-14 and 2014-15, compared with the tonnage and ranking ten years earlier, in the three seasons, 2002-03, 2003-04 and 2004-05. While most of the historical data, with the exception of China, come from the UN,FAO, FAOSTAT database, more recent data come from industry sources such as the IKO. Like all data for agricultural commodities, there are definitional problems (for example, between "all production" and "commercial production"), disagreements between data sources, and frequent data revisions. Accordingly, the data in this table should be used as a broad indicator of trends for individual countries and for the world.

In the decade between 2002-05 and 2012-15, total world kiwifruit production is estimated to have increased by 67.7 percent (a rapid rate of about 6.8 percent per year). This average rate of increase is deceptive. Three major producing countries, China, Greece and Iran, had growth rates above 100 percent, while Portugal's production grew by almost 66 percent. Chile's production grew by over 30 percent, but that would have been closer to 50 percent had the Chilean crop not suffered severe weather-related losses in 2014. Production in New Zealand grew by over 22 percent despite the ravages of PSA. In contrast, production in France fell by almost 20 percent in the decade, while that of Italy, the United States and Japan rose by less than 20 percent. The largest absolute increases in production were for China, Greece, New Zealand, Chile and Italy.

The rank of the top four kiwifruit producing countries was the same in 2012-15 as in 2002-05, with China extending its supremacy as the largest producer. Greece and Iran took fifth and sixth place in 2012-15, moving ahead of France. Japan dropped to eighth place, a long way behind France. The United States remained in ninth place, but Portugal bumped South Korea from the top ten in 2012-15.

The level of concentration in the world kiwifruit industry continued to change. The share of the top five in 2012-15, at 85.9%, was more than 5 percentage points greater than the share in 2002-05. In contrast, the share of the second five slipped from 17.0% to 8.8%. The share of production accounted for by countries not in the top ten was still small in 2012-15 (only 5.3%), but was 3 percentage points higher than in 2002-05. Among other countries producing kiwifruit were well-known suppliers like Spain and South Korea, and lesser-known countries like Argentina, Brazil, Israel and Tunisia.

Top Ten Kiwifruit Producing Countries, by Rank and Tonnage, 2002-05 and 2012-15

Rank 2002-05 (#)	Country 2002-05	Volume 2002-05 (metric tons)	Rank 2012-15 (#)	Country 2012-15	Volume 2012-15 p (metric tons)
1	China	483,333	1	China	1,150,000
2	Italy	377,123	2	Italy	416,333
3	New Zealand	265,165	3	New Zealand	323,667
4	Chile	132,667	4	Chile	203,208
5	France	76,450	5	Greece	121,677
6	Greece	50,316	6	Iran	80,000
7	Japan	35,400	7	France	61,833
8	Iran	27,000	8	Japan	37,500
9	United States	23,224	9	United States	26,823
10	South Korea	11,833	10	Portugal	18,000
-	Top Five	1,224,738	-	Top Five	2,214,886
-	Percent	80.7%	-	Percent	86.1%
-	Top Ten	1,482,511	-	Top Ten	2,439,041
-	Percent	97.7%	-	Percent	94.8%
-	World Total	1,516,808	-	World Total	2,573,298

Overall, the world kiwifruit industry remained in a strong growth mode in the last decade. The three major European suppliers (Italy, France and Greece) had combined production increases of almost 100,000 metric tons in the decade, while the two major Southern Hemisphere suppliers (New Zealand and Chile) had combined production increases of over 129,000 metric tons. China's contribution to the growth of world production has already been noted. The three other major Asian kiwifruit producers, Japan, Iran and South Korea, saw combined production increase by over 55,000 metric tons.

The distribution of increased production has important implications for the strategies that different countries and regions will need heading into the future. The growth in domestic production in Europe means that Southern Hemisphere suppliers will face narrower windows for off-season sales, while European suppliers will face heavier off-season supplies. The growth of kiwifruit production in China has so far had limited impact on world markets, unlike apples or pears. However, should that change, it could severely disrupt world kiwifruit markets.

Kiwifruit Cultivar Mix after PSA

Prior to the advent of PSA, the world kiwifruit industry was racing ahead to commercialize new kiwifruit cultivars to reduce the industry's dependence on the green Hayward cultivar, which had become regarded as a commodity whose price responded negatively to further increases in supply. The race was enhanced by the dramatic success of the managed variety, Hort 16A, that was licensed first in New Zealand, and then licensed in other countries to secure 12 month supplies. It had gradually achieved the twin goals of substantial price premiums and higher average yields than the Hayward cultivar. Its success spawned widespread efforts among breeders elsewhere to find new cultivars that could achieve the same twin goals.

The race was enabled by the fact that vast untapped resources of germplasm existed in the wild in China. Initial efforts to exploit those resources involved cooperation between Chinese scientists, who were then poorly funded, and foreign breeders and corporations outside China, that understood the needs of global markets. Both the Hort 16A, and newer cultivars like Jintao and Soreli, emerged from such cooperative efforts.

However, as China became more wealthy, it dramatically increased domestic investment in scientific exploration of its kiwifruit resources. It has developed numerous cultivars with various permutations of skin surface (smooth or hairy), skin color (green or golden), flesh color (gradations of green, gold or red), shape, size, etc. Most of these are only sold within China, but a number of foreign entities, including Zespri Limited and Enza Limited, have made limited tests of red-fleshed cultivars in foreign markets. In addition to seeking different flesh colors, many breeders and sponsors have sought green cultivars that can enter the market earlier than Hayward. A number of these early cultivars, such as Summer Kiwi and Green Light, have been marketed for several years under licensed and managed systems.

From now on, all existing cultivars will have to be monitored for their resistance to PSA. Golden cultivars appear to be more susceptible to damage from PSA than do green varieties, although the New Zealand industry appears confident that the new Gold3 and Gold9 cultivars will be sufficiently resistant with good management and adequate controls. The preferred business model for commercializing new cultivars has been to encourage plantings in a number of locations in both the Northern and Southern Hemispheres in order to ensure twelve month supplies. However, that model increases the risk disease might be transferred from one producing districts to another, and that existing cultivars could be infected.

The area planted in Hort 16A peaked above 3,000 hectares in 2009-10, but had fallen to one fifth of that level by 2014. It was surviving only in areas where PSA had not yet penetrated. A second golden variety, Jintao, planted in Italy, Chile and Spain, had expanded to about 1,000 hectares by 2014, but it is susceptible to PSA. There are limited plantings of a number of other golden varieties, including Gold9, First Gold and Soreli (also sold as Enza Gold). None of these has shown the potential to become a major variety, so their impact on the total kiwifruit market has been limited.

The same can be said for the numerous green cultivars that have been commercialized in recent years. The most important has been Summer Kiwi. Its estimated production of 5,000 metric tons in 2014 was about half the production of all minor green varieties. So, despite all the efforts at innovation, the Hayward variety continues to dominate world kiwifruit production.

The major potential for disruption of this scenario is likely to lie in China. In association with Chinese colleagues, Dr A.R. (Ross) Ferguson has played a key role in making information on kiwifruit developments in China widely available in English. He participated in a 2002 effort to catalog kiwifruit varieties in China, and updated those findings in an unpublished paper "Kiwifruit in the world - 2014."

Data on kiwifruit varieties in China in 2002 and 2013 are summarized in the table below. In 2002, the varieties were listed under two separate species names, *Actinidia Deliciosa* and *Actinidia Chinensis*. The former is most often associated with green-fleshed fruit, like Hayward, and the latter with yellow-fleshed fruit, like Hort 16A. However, as the table shows, that is not exclusively so. A number of the *Actinidia Chinensis* cultivars in China had green or red flesh. The green-fleshed varieties dominated the offerings. The major green-fleshed variety in China in 2002 was Qinmei, with Hayward in second place. Only one red-fleshed variety, Hongyang, was listed in 2002. It accounted for only 4 percent of plantings.

However, by 2013, the picture had changed dramatically, an indicator of the tremendous experimentation and investment that have taken place in China in finding better commercial kiwifruit cultivars. Among green-fleshed varieties, the Hayward had far outdistanced the 2002 favorite, Qinmei, while plantings of Xuxiang had also passed those of Qinmei. Among *Actinidia Chinensis*, plantings of the red-fleshed Hongyang had risen almost eight-fold, making it the second largest individual variety. Among yellow-fleshed varieties, the most significant development was the emergence of hybrid varieties such as Jinyan and Huajou.

**China: Estimated Area Planted to Main Kiwifruit Cultivars,
2002 and 2013
(hectares)**

Cultivar	Flesh Color	2002 (hectares)	2002 (percent)	2013 (hectares)	2013 (percent)
Actinidia Deliciosa					
Qinmei	Green	17,480	33.1	8,170	7.5
Hayward	Green	7,580	14.4	28,730	26.4
Miliang No. 1	Yellow-green	5,550	10.5	6,500	6.0
Jinkui	Green	2,340	4.4	3,560	3.3
Bruno	Green	2,000	3.8	670	0.6
Chuanmi No. 1	Green	1,800	3.4	n.a.	n.a.
Xuxiang	Green	850	1.6	9,830	9.0
Guichang	Green	n.a.	n.a.	2,000	1.8
Yate	Green	n.a.	n.a.	1,330	1.2
Cuixiang	Green	n.a.	n.a.	1,000	0.9
Other	-	1,103	2.1	n.a.	n.a.
Total Deliciosa	-	38,703	73.4	61,790	56.7
Actinidia Chinensis					
Hongyang	Red	2,180	4.1	16,630	15.3
Zaoxian	Yellow	2,330	4.4	n.a.	n.a.
Kuimi	Green-yellow	3,080	5.8	n.a.	n.a.
Jinfeng	Yellow	2,720	5.2	700	0.6
Wuzhi No. 3	Green	200	0.4	680	0.6
Guihai No. 4	Green	200	0.4	n.a.	n.a.
Lushanxiang	Yellow	1,450	2.7	n.a.	n.a.
Chuhong	Red	n.a.	n.a.	n.a.	n.a.
Jintao	Yellow	n.a.	n.a.	730	0.7
Other	-	1,900	3.6	n.a.	n.a.
Total Chinensis	-	14,060	26.6	18,740	17.2
Hybrids					
Huayou	Yellow	n.a.	n.a.	3,330	3.1
Jinyan	Yellow	n.a.	n.a.	7,680	7.1
Total Hybrids	-	n.a.	n.a.	11,010	10.1
All Others					
All Others	-	n.a.	n.a.	17,360	115.9
Grand Total					
Grand Total	-	52,763	100.0	108,900	100.0

Sources: 2002 data. H.Huang and A.R.Ferguson. The Chinese Kiwifruit Industry- update 2003 (unpublished)

2013 data. A.R. Ferguson. Kiwifruit in the world - 2014 (unpublished).

The changes in plantings have been driven by a search for improved commercial quality and in response to price signals from the marketplace. Ferguson noted that further changes can be expected based on the high proportion of plantings of Jintao and Jinyan that were not yet fruiting. He forecast that Jinyan might soon be the third most widely planted cultivar in China. In contrast, he expected plantings of Qinmei to decrease further because of poor quality, and of Hongyang to decrease because of susceptibility to PSA.

Work is also continuing in China and with counterparts overseas on finding more commercially acceptable red-fleshed kiwifruit varieties in the belief that these could broaden total market demand for kiwifruit in the same way commercialization of yellow-fleshed kiwifruit like Hort 16A did in the past. The broad goal is to find cultivars that produce large fruit with a pleasant appearance, good color, delicious flavor, high dry matter content, resistance to drought and disease, and a long shelf life. Given the diversity of the germplasm available, the possibility of interspecific breeding, and the availability of advanced genetic techniques, the number of potential commercial cultivars is high. The challenge is finding ones that will perform consistently under normal growing, packing, handling and marketing conditions. The modern food distribution system will only continue to handle products that are consistent in quality.

It is likely that a steady stream of new kiwifruit cultivars will emerge from breeding programs around the world and be adopted by large multinational organizations that are seeking unique products that they can add to their product mix and that they can use as a competitive advantage in winning the business of major retailers. For example, the Jingold organization introduced three new varieties at the 2013 Macfrut conference that were obtained from the Wuhan Botanical Institute in China. These were the yellow-fleshed Jinyan, the green-fleshed Z5Z6 and the yellow-fleshed Donghong with a red endocarp. The Jingold organization is already experienced in licensing the production and marketing of exclusive kiwifruit varieties in partner countries, so these varieties will stake their claim in the global marketplace.

However, innovation and commercialization are very costly endeavors. The Chinese government is unlikely to continue to underwrite exploitation of its kiwifruit resources unless it sees potential payback, especially as the Chinese economy slows. In turn, major retailers in many countries are moving towards smaller outlets with more limited shelf space, so getting new products on retail shelves will become more challenging. The kiwifruit industry will need to be very prudent in how it diversifies its product portfolio.

Production Trends in Major Producing Countries

While the overall trend in kiwifruit production has been upward, different countries have had different experiences depending, not just on the impact of PSA, but also on general economic conditions and the situation with competing fruits. Some of the key factors affecting kiwifruit production in different countries are discussed in this section.

China has moved ahead decisively as having the largest kiwifruit industry in the world. It is important to remember that China is continental in scale and has numerous provinces that are suitable for commercial production of kiwifruit. Sustained, rapid economic growth in China has created very strong demand for many types of fruit, including kiwifruit. Indeed, despite the growth of Chinese kiwifruit production, almost all of its production is absorbed within China and the demand for imported kiwifruit continues to grow. The previous section noted the expansion of area planted to kiwifruit in China, the diverse types of kiwifruit being commercialized, and the trend towards production of varieties that offer greater price returns.

Conditions in China may be about to change. The headlong rate of economic growth appears to be slowing, unemployment has been rising, and there is serious overcapacity in housing and in many industrial sectors. The new regime of President Xi Jinping is seeking to engineer a slower, more sustainable rate of growth that will be driven more by domestic demand and less dependent on exporting. However, that transition may not be easy. If domestic demand for kiwifruit slows and production continues to increase, the Chinese kiwifruit industry will be under additional pressure to increase exports. However, it still appears to lack the product quality and marketing expertise to compete with countries like New Zealand and Chile, whose primary focus is on satisfying world markets. However, it successfully made that transition for other products like fresh apples and fresh pears. It would be prudent not to underestimate China's potential.

Italy remains the second largest kiwifruit producing country in the world. In addition to having a large domestic population, Italy is close to affluent and heavily-populated European countries, like Germany, France and Spain, where kiwifruit are widely popular. Thus, Italy has played a pivotal role in world trade in kiwifruit for many years. Despite this favorable situation, growth of production of kiwifruit in Italy has recently been spasmodic. Kiwi area planted peaked in 2010, and there has been modest attrition since.

On the supply side, Italy has a wide choice of fruits that it can produce in its many microclimates. Losses suffered from PSA have discouraged kiwifruit production in some of the major kiwifruit-growing provinces. If new plantings of the PSA-resistant Gold3 or other new varieties are successful, it could change growers' attitudes towards new plantings of kiwifruit. However, on the demand side, the continued economic malaise in Europe, the slow rate of population growth and, until recently, the relatively strong euro currency, have impeded exports and facilitated imports. Until these forces change, Italian production of kiwifruit will remain important, but fluctuations in production will be due largely to seasonal factors such as weather.

New Zealand Prior to being hit with the sudden, devastating shock of PSA in 2010, the New Zealand kiwifruit industry had set a target of doubling its value within 10 years. However, as discussed in previous sections, after PSA hit, the various public and private segments of the industry pulled together to stem the losses and to stage a bold recovery plan based on newer yellow-flesh cultivars like Gold3. That recovery plan follows a similar blueprint to the one operated successfully for many years by the Zespri Group, which has a virtual monopoly over marketing of kiwifruit produced in New Zealand.

The Zespri Group controls the single point of entry (SPE) system for New Zealand kiwifruit entering the international market. Except for the public variety, Hayward, it also controls the intellectual property of all new kiwifruit varieties it markets. It uses quality standards and financial incentives to ensure that its growers and packers deliver more of the products that its customers demand, and that the product presented for export is superior in quality to that of its major competitors. Unique branding and targeted promotions are used to justify price premiums in wholesale and retail markets around the world. The Zespri Group also licenses organizations in other producing countries to provide complementary supplies of its branded varieties to ensure twelve-month supplies to its major customers.

The traditional blueprint helped the New Zealand kiwifruit industry maintain price premiums even though both domestic and foreign supplies of its products were reduced by PSA after 2010. While total supplies fell, the impact on industry revenues was offset to some extent by higher prices. In addition, the reputation of Zespri kiwifruit in the marketplace was not compromised. It also appears that buyers have been willing to transition from Zespri™ Gold branded products to the new Sungold™ products. However, the early years of commercialization of any new variety can bring unpleasant setbacks. The recovery is a work in progress.

Chile Just as in Italy, producers in Chile have a wide range of alternative, high-valued fruit, grape, nut and berry products that they can grow. Market demand for alternative products (such as sweet cherries) has been growing faster than for kiwifruit. As a result, the area planted to kiwifruit fell after 2012. Damage from PSA also discouraged some producers. While Chile has not so far succeeded in breeding its own kiwifruit varieties, it remains the partner of choice for many kiwifruit commercialization programs that want Southern Hemisphere supplies of their new cultivars. The major viable alternative, New Zealand, is not acceptable because it manages its own, competing, new product development network.

Kiwifruit production in Chile in 2014 was more than 20 percent below the long-term trend because of adverse weather. However, production can be expected to continue to increase modestly as more of the existing acreage comes into full-bearing. Because of Chile's export orientation, the future trend in plantings will be heavily impacted by the strength of international demand. The trend of exchange rates has recently moved in Chile's favor in the U.S. and European markets, but that is partly offset by weaker demand in Europe. Like New Zealand, Chile is optimistic about the potential growth in demand for kiwifruit in Asia, especially China. But, as noted above, economic growth in China has been flagging. Until that reverses, further expansion of kiwifruit plantings in Chile are unlikely.

Greece Production of kiwifruit in Greece has risen very rapidly in the last decade after a series of down years caused by unfavorable weather. Area planted and production both doubled between 2006 and 2014. Greece has become the fifth largest kiwifruit producer in the world by a large margin.

The kiwifruit industry has expanded despite the economic crisis that has engulfed Greece since 2010, and despite the austerity measures imposed on Greece by the so-called "Troika" of the European Central Bank, the International Monetary Fund and the European Commission, as part of Greece's financial bailout. Greek producers have been helped by the restoration of more peaceful conditions in the neighboring Balkan countries and by rapid economic growth in Eastern Europe and the Russian Federation. Greece has been able to tap lower-priced markets in these regions. However, Russian GDP is expected to plunge by 5 percent in 2015 due both to falling oil prices and to the dispute between Russia and the European Union over the future of the Ukraine. If that dispute persists, it could remove one of Greece's major export markets. In January 2015, Greece elected a new government that sought to negotiate a bailout extension. It appears that Greece will get that extension, but may have to commit to further austerity measures.

France The kiwifruit industry in France has experienced a slow, gradual erosion of area and production for over two decades. The experience has been similar to that of many other major fruits in France. This suggests that common factors, such as relatively high costs and non-farm competition for scarce resources, have been a major influence. The industry has sought to compensate for higher costs by seeking premium price markets in the European Union and in other countries. However, that strategy has been made more difficult by the slow growth of many European economies and, until recently, by the relative strength of the euro. While the euro has declined sharply since mid-2014, so also have the currencies of many competing countries. Thus, it appears that the French kiwifruit industry will continue to face difficult conditions.

Japan Area and production of kiwifruit in Japan peaked in the early-1990s, and then entered a long, slow decline. Area is now stable at about half the 1990s level, so variations in production are due to seasonal crop conditions. As a result, Japan now gets more than half of its fresh kiwifruit from imports. Those imports were dominated by New Zealand, with Zespri™ Gold kiwifruit being particularly popular. As that product gradually disappears, Japanese buyers have transitioned relatively smoothly to alternative New Zealand products. The major problem in the Japanese market is that prolonged economic stagnation has kept market growth depressed.

United States Kiwifruit production in the United States is confined primarily to three counties in central California. Thus, kiwifruit faces competition for farmers' attention from a wide range of high-value fruits, nuts, grapes and berries. California was unable to successfully grow Hort 16A, so it remains heavily dependent on the lower-priced Hayward variety. Harvested area has stabilized around 1,500 hectares. There is renewed interest in planting some of the newer kiwifruit varieties that are becoming available. However, the United States will continue to get most of its supplies of fresh kiwifruit from imports.

Spain and Portugal Areas in Spain and Portugal that are suitable for kiwifruit production are relatively small, and increasing only in Portugal. However, kiwifruit is a very popular fruit, especially in Spain. As a result, there is an incentive to add small increments to both area and production. Both countries are a low priority for organizations seeking to diversify production of newer kiwifruit cultivars, so both remain heavily dependent on the Hayward variety. Spain, in particular, is a very large net importer of kiwifruit. Accordingly, these countries play a small role in EU export trade, behind Italy, Greece and France.

South Korea Until recently, the South Korean government protected its fruit industries from foreign competition and encouraged domestic production. In the case of kiwifruit, success has been limited because of the lack of suitable microclimates for production. Area planted is thought to have stabilized at under 1,200 hectares. In the last decade, in order to gain improved access for its industrial exports, South Korea has dismantled many barriers to imported fruit, including kiwifruit. For that reason, its kiwifruit industry is unlikely to increase from its present level.

Iran Data on the size of the Iranian kiwifruit industry is difficult to obtain, and often conflicting. Unofficial IKO statistics suggest that production currently averages about 80,000 metric tons per year, twice the UN,FAO estimate. With its large and growing population, and location near major Middle Eastern markets, Iran appears to have excellent prospects for expanding sales of kiwifruit. However, disputes with its neighbors on many fronts have hampered political and trade relations, while economic sanctions have disrupted internal commerce. More recently, plunging oil prices have reduced government funds. These conditions will make it difficult for Iranian agriculture in general to expand in the near future.

Australia The kiwifruit industry in Australia expanded too rapidly in unsuitable areas in the 1980s, but shrank rapidly thereafter. Approximately 400 hectares are still in production, primarily in north-eastern and central Victoria and New South Wales. Production growth is based on improved management of orchards and vines. This means that Australia must import most of its needs. That situation is unlikely to change soon.

Turkey Data inconsistencies also make it difficult to estimate the true size of the kiwifruit industry in Turkey. That country clearly has many successful fruit growing areas and many alternative fruit crops with which kiwifruit must compete. UN,FAO data showed 24,000 hectares of kiwifruit, producing 28,000 metric tons of kiwifruit, suggesting very low average yields. However, official Turkish government figures for 2013 indicate that Turkey produced 41,635 metric tons of kiwifruit on a production area of 2,133 hectares. However, Turkish production is estimated to have grown fivefold since 2005.

Other Minor Producing Countries UN,FAO reports kiwifruit production in eight countries, Bulgaria, Canada, Cyprus, Israel, Kyrgyzstan, Slovenia, Switzerland and Tunisia. However, Israel accounted for 70 percent of the limited production. Unofficial reports indicate some production in Argentina, Brazil, Mexico and South Africa, but the commercial success of these ventures has so far been limited.

Future World Kiwifruit Supplies

In general, the future supplies of any perennial crop are heavily influenced by the age distribution of the planted area and the expected yield of vines at each age. While such detailed data are rarely available, it is usually possible to project future trends in average yields based on past experience. During the height of the PSA crisis, in the most heavily affected growing districts, area planted could no longer be assumed to be homogeneous. In many producing blocks, varying proportions of vines had been removed, or the productivity of the surviving vines had been compromised. It was difficult to talk about normal average yields in an abnormal situation. However, because kiwifruit prices remained strong, so did the incentive to plan for recovery. Reports from major producing countries indicate that by 2015, the most affected plantings had been removed and replaced with cultivars that are less susceptible to damage from PSA. It seems, therefore, that the world kiwifruit industry is returning to a more normal situation, although average yields will remain depressed until re-plantings and new plantings reach full bearing.

Taking all these factors into account, it seems likely that it will be at least two more seasons before kiwifruit production in the world excluding China passes the record level of about 1.6 million metric tons set in 2011-12. Production in China is likely to continue to grow as more new plantings come into full bearing. By 2018, total world production could easily exceed 3 million metric tons. This period of renewed growth will present additional marketing challenges for the world kiwifruit industry.

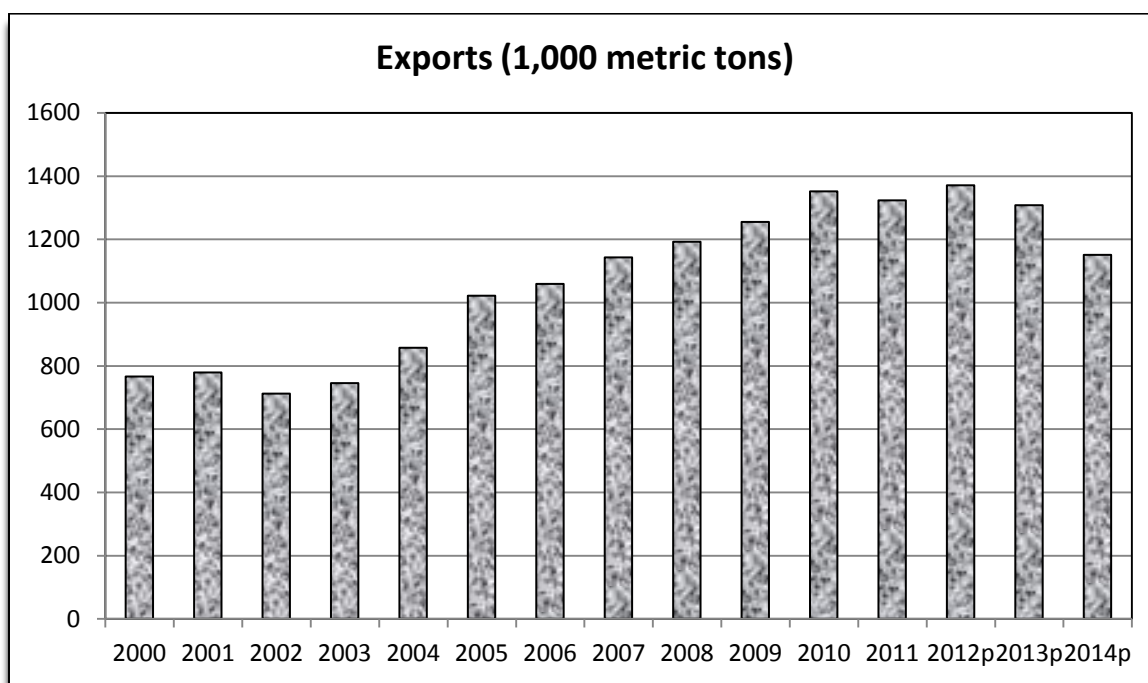
Those challenges will be accentuated by the continued, heavy reliance of the kiwifruit industry on a single green-fleshed variety, Hayward, and a single yellow-fleshed variety, Sungold. That reliance could be reduced if one or more of the many alternative cultivars being developed could achieve the sort of commercial success that has so far proved elusive.

2. Trade in Fresh Kiwifruit

World Kiwifruit Exports Stall

The volume of world exports of fresh kiwifruit had year over year increases for eight successive years between 2003 and 2010. However, the volume of exports slipped in 2011 due to an off-year in some major kiwifruit producing countries. PSA infections slowed exports from New Zealand in calendar years 2012 and 2013. This was partly offset by substantial increases in exports from Chile and Greece. However, even though New Zealand exports recovered somewhat in 2014, that increase was offset by weather-related declines in exports from Chile and Greece. Exports from Italy also remained below recent past peaks in 2013-14. The decline in exports may be short-lived as New Zealand and Italy overcome the effects of PSA and as more normal weather patterns return in Chile and Greece. The kiwifruit industry outside China will continue to have a propensity to export a relatively high share of its production.

World: Volume of Exports of Fresh Kiwifruit, 2000-2014 (1,000 metric tons)



Italian Exports Dominate Europe

Italian exports of fresh kiwifruit continue to dominate in Europe. Italy is both the largest (by far) European exporter of fresh kiwifruit, and also sends two-thirds of its exports to other European countries. Italian kiwifruit are particularly prominent in Germany, Spain and France. In recent years, Poland has joined the United Kingdom and the Netherlands as another favorite target market. Exports to Russia have made little progress, even before the trade ban. However, Italy has seen strong growth of its exports to North America, Central and South America, Asia and the Middle East. In 2013-14, the United States was its third largest market for the first time. Exports to Africa also remain far above historic levels. Exports to Europe have been hindered by weakness in the European economies, but those to third countries should be helped by the recent slide in the value of the euro.

Italy: Fresh Kiwifruit Exports, by Destination, 2008-09 to 2013-14 (metric tons)

Destination	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Germany	67,829	72,653	63,050	60,461	55,862	53,300
Spain	52,528	48,818	45,812	39,343	39,543	42,484
France	31,980	25,827	21,416	24,161	20,468	21,207
United Kingdom	18,781	15,719	14,467	15,691	13,657	13,612
Netherlands	17,372	15,159	13,380	12,392	14,687	14,119
Poland	16,450	20,502	20,279	26,024	18,266	17,410
Other EU-28	62,567	74,505	68,824	67,210	48,624	48,632
Subtotal EU-28	267,507	273,183	247,228	245,282	211,107	209,763
Russia	13,339	17,841	15,837	18,396	11,735	8,112
Other Europe	11,616	12,623	11,241	9,654	9,689	8,902
Russia/Other Europe	24,955	30,464	27,078	28,050	21,424	17,014
United States	12,960	13,259	10,178	16,469	20,419	21,449
Canada	6,350	9,870	8,001	9,312	8,565	8,902
North America	19,310	23,129	18,179	25,781	28,984	30,351
Cen & South America	5,403	11,159	12,726	18,383	14,573	17,023
Middle East	5,311	8,825	9,002	11,437	9,576	7,920
Asia	9,569	11,534	13,287	12,299	13,659	20,511
Oceania	4,575	6,336	5,702	4,761	5,546	5,550
Africa	2,002	4,020	4,645	10,036	6,471	7,512
All Other	334	377	218	790	745	291
TOTAL	338,966	369,027	338,065	356,819	312,085	315,935

New Zealand Exports Rebound

New Zealand exports of fresh kiwifruit set a new record in calendar year 2011. However, they fell by about 10 percent in each of the next two years as the full damage from PSA was being felt. Reductions in the availability of yellow-fleshed fruit was one of the factors that affected which markets were reduced most. For example, there were large percentage declines in exports to Spain, South Korea and Taiwan. However, exports to North America fell by more than half between 2011 and 2013. Exports rebounded by 8.5 percent in 2014, as more yellow-fleshed kiwifruit became available. Not surprisingly, the rebound was felt in all the major Asian markets, and in Italy, North America and the Middle East. Exports to the EU-28 and to Russia continued to decline in 2014. Throughout the PSA crisis, the shift in New Zealand's focus from European to Asian markets has continued.

New Zealand: Fresh Kiwifruit Exports, by Destination, 2008 to 2014 (metric tons)

Destination	2008	2009	2010	2011	2012	2013	2014p
Italy	17,523	15,671	16,912	17,015	15,489	12,371	14,270
Spain	48,723	43,015	47,530	44,262	29,152	37,687	33,662
United Kingdom	590	537	148	0	0	0	3
Other EU-28	127,532	115,795	110,404	116,883	104,893	93,943	93,891
Subtotal EU-28	194,368	175,018	174,923	178,160	149,534	144,001	141,826
Russia	395	496	746	1,276	1,338	1,427	660
United States	21,392	21,719	17,985	20,649	11,624	7,275	8,866
Canada	1,186	643	1,852	1,409	1,964	1,547	2,174
Mexico	2,793	3,763	2,830	3,232	1,561	814	1,695
Subtotal N America	25,371	26,125	23,667	25,290	15,149	9,636	12,735
China	16,110	21,664	25,329	32,956	34,078	27,672	39,585
Japan	58,916	57,903	61,346	63,733	60,294	59,426	64,582
South Korea	26,543	22,070	23,939	25,743	20,274	13,295	15,875
Taiwan	18,619	19,652	20,537	26,124	28,566	21,310	22,926
Other Asia	12,245	16,006	16,835	22,114	31,190	20,382	23,040
Subtotal Asia	132,433	137,295	147,986	170,670	174,402	142,085	166,008
Middle East	4,998	3,815	2,260	3,635	2,727	2,999	4,423
Oceania	15,175	15,344	15,316	18,062	17,052	15,273	15,811
All Other	4,027	2,933	3,628	4,405	4,138	3,211	4,204
TOTAL	376,767	361,026	368,526	401,498	363,340	318,632	345,667

Chile's Export Growth Interrupted

Chilean exports of fresh kiwifruit fell by more than half between 2013 and 2014, largely due to severe weather damage during the growing season. The result was cuts across the board to all major Chilean markets. Accordingly, the distribution of Chilean exports was far from typical, and provides little clues about potential growth markets once normal crops return. Prior to 2014, the fastest growth in Chilean fresh kiwifruit exports was to North, Central and South American countries, Asian countries and the Middle East. Notable gains to individual markets were reported for the United States, Mexico, China and South Korea.

Chile: Fresh Kiwifruit Exports, by Destination, 2008 to 2014 (metric tons)

Destination	2008	2009	2010	2011	2012	2013	2014p
Italy	27,930	32,821	27,920	23,785	23,117	22,902	7,674
Netherlands	31,674	24,903	22,198	19,858	24,797	27,453	12,240
Spain	17,135	19,276	19,475	14,611	17,402	14,708	3,337
United Kingdom	8,813	8,884	7,380	7,795	9,038	6,760	6,050
Other EU-28	15,052	16,295	12,212	11,342	10,662	10,560	6,160
Subtotal EU-28	100,604	102,179	89,185	77,401	85,016	82,260	35,461
Russia	11,389	11,899	14,116	16,061	16,127	18,622	9,973
United States	17,251	19,853	22,480	22,216	30,699	32,074	20,666
Canada	2,434	3,437	3,841	3,358	4,074	3,467	2,409
Mexico	3,013	3,314	4,791	4,811	6,426	6,816	2,429
Subtotal N America	22,698	26,604	31,112	30,385	41,199	42,357	25,594
Cen & South America	12,158	23,293	26,377	26,610	36,621	35,921	15,486
China	0	0	499	2,130	7,222	11,409	6,717
Japan	926	935	1,726	2,126	2,678	1,714	1,152
South Korea	2,546	5,428	5,806	4,056	8,269	6,681	3,155
Taiwan	638	804	76	291	1,582	1,316	1,092
Other Asia	3,840	5,587	4,475	6,269	3,567	1,447	988
Subtotal Asia	7,940	12,754	12,582	14,872	23,318	22,567	13,104
Middle East	3,880	4,752	7,779	8,220	7,329	8,922	1,741
Oceania	0	0	0	17	31	21	6
All Other	878	1,583	1,290	719	4,843	2,408	1,313
TOTAL	160,252	182,771	181,870	178,131	214,484	213,078	102,680

Both New Zealand and Chile have been leading exporters of organic kiwifruit. The organic share of New Zealand exports has hovered around three percent of the total for the last decade. While the grower returns for Zespri™ Green Organic have often exceeded those for conventional Zespri™ Green by 50 percent, growers have complained that the premium has not been enough to justify expansion of organic plantings. Data on Chilean exports of organic kiwifruit have only recently become available. Exports were 4,780 metric tons in 2013 and 4,055 in 2014, so organic exports were hurt less by weather damage than conventional product. Thus, organic exports accounted for about 4 percent of all Chilean exports of fresh kiwifruit in 2014. The major markets for organic kiwifruit were the United States, Italy, the Netherlands and the United Kingdom. Surprisingly, the average price premium for Chilean organic kiwifruit exports was minimal. Among the four leading export markets, the biggest premium was 10 percent for sales to Italy.

Greece Surprises on Upside

Exports of fresh kiwifruit from Greece, as shown in the table below, catapulted to new levels in the 2012-13 season at more than 120,000 metric tons, almost twice the previous four-year average. They fell back somewhat in 2013-14 because of a smaller total Greek kiwifruit crop. Unlike their major European rival, Italy, Greece has been more effective in tapping lower-priced fresh kiwifruit markets outside of western Europe. It has consistently sold more in the new member states (NMS) of the EU than in the long-term member states of the EU-15. For the last decade, Russia has been its largest single market. However, sales to European countries not members of the EU have also moved upwards.

While sales to North America have grown over time, they remain a small percentage of total Greek exports. Greece gained access for its fresh kiwifruit to the Chinese market for the first time in 2012, and sales to China have doubled since then. Exports have also expanded to other countries in Asia and to the Middle East. However, Greece continues to be heavily dependent on exports to neighboring countries to its north, and to Russia, Turkey and their neighbors to the east.

The Russian ban on fruit imports from the EU, imposed in August 2014, could have a deleterious effect on the Greek kiwifruit industry. Greece may be forced to scramble to find alternative markets to Russia. As long as the Russian ban lasts, it is likely to have a depressing effect on the already relatively low prices of Greek fresh kiwifruit exports.

**Greece: Fresh Kiwifruit Exports, by Destination, 2008-09 to 2013-14
(metric tons)**

Destination	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
EU-15	7,473	7,813	8,991	13,040	26,104	17,172
EU-NMS	14,264	21,213	17,257	16,179	28,096	17,393
EU-28 Total	21,737	29,026	26,248	29,219	54,200	34,565
Russia	16,463	15,260	19,071	29,076	33,185	22,915
Other Europe	11,387	18,706	18,193	19,902	22,812	15,021
Russia/Other Europe	27,850	33,966	37,264	48,978	55,997	37,936
United States	214	43	164	128	317	867
Canada	99	104	129	174	478	186
Subtotal N America	313	147	293	302	795	1,053
China	n.a.	n.a.	n.a.	548	1,167	1,210
Other Asia	n.a.	n.a.	n.a.	264	1,156	523
Subtotal Asia	93	301	302	812	2,323	1,733
Turkey	n.a.	n.a.	n.a.	2,393	367	59
Other Middle East	n.a.	n.a.	n.a.	3,454	3,000	3,467
Subtotal, Middle East	353	1,555	2,085	5,847	3,367	3,526
All Other	149	534	119	2,342	3,397	1,197
TOTAL	50,495	65,529	66,311	87,500	120,079	79,730

France Branches Out

Exports of fresh kiwifruit from France have tended to fluctuate in a narrow range over time. Until recently, most of France's exports went to neighboring countries in western Europe that were willing to pay a premium price for French product. However, with demand in western Europe weak as a result of the economic slowdown, France has made a concerted effort to find alternative markets. France gained access for its fresh kiwifruit to the Chinese market in 2010, and has steadily expanded sales there. Overall sales to Asia have tripled in the last seven years, with the biggest volume outside China going to Taiwan. In general, Asian markets have been willing to pay the premium prices for good quality that French exporters demand. The Russian ban may have an indirect effect on French kiwifruit exports as other suppliers divert product to western European markets.

France: Fresh Kiwifruit Exports, by Destination, 2008-09 to 2013-14 (metric tons)

Destination	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Germany	3,248	2,992	2,653	2,877	3,592	2,992
Spain	6,341	5,801	4,497	3,419	3,627	3,493
Belgium/Luxembourg	5,751	5,852	3,758	4,990	6,297	5,953
Other EU-28	3,583	3,887	3,127	2,507	2,214	2,256
Subtotal, EU-28	18,089	18,532	14,035	13,793	15,730	14,694
Canada	20	224	267	115	62	123
China	0	769	1,169	1,465	3,649	3,484
Hong Kong	327	202	715	2,369	451	0
Taiwan	1,800	3,253	2,495	1,532	3,575	2,589
Other Asia	327	375	590	332	605	1,058
Subtotal, Asia	2,127	4,563	4,969	5,695	8,480	7,131
Australia	105	483	924	630	882	567
All Other	1,228	883	385	1,338	872	956
TOTAL	21,569	24,685	20,580	21,571	26,026	23,471

China, Land of Opportunity

As demand for many fresh fruits has stagnated in the developed countries in Europe and North America, major fruit exporters have turned increasingly towards Asian markets, especially those of China, where the number of middle class consumers has exploded and a modern retail distribution system capable of handling perishable produce has developed rapidly. Optimism about China has been encouraged by the rapid expansion of imports of both temperate and tropical fruit products after China granted market access. In the case of fresh kiwifruit, market access was granted over a decade ago to off-season supplies from New Zealand and Chile. Since 2009, the Chinese market has been progressively opened to fresh kiwifruit imports from France, Italy and Greece. Total imports of fresh kiwifruit by China doubled about every two years between 2003 and 2012. Imports fell by about 7 percent in 2013, as reduced supplies from New Zealand more than offset increased supplies from France, Italy and Greece. Imports rebounded to a new record level in 2014.

China: Imports and Exports of Fresh Kiwifruit, 2003-2014 (metric tons)

Partner	2003	2005	2007	2009	2010	2011	2012	2013	2014
Total Imports	2,975	6,730	13,554	26,830	33,161	43,113	51,955	48,243	62,829
New Zealand	2,649	5,647	11,485	22,034	25,472	29,153	36,930	27,666	39,481
Chile	325	1,264	2,069	4,705	6,093	11,122	11,652	11,711	7,338
France	0	0	0	19	865	1,291	1,222	3,735	3,825
Italy	0	0	0	71	731	1,506	1,284	4,011	11,037
Greece	0	0	0	0	0	39	868	1,121	1,149
Total Exports	1,545	4,487	3,748	1,749	2,041	1,891	934	1,478	2,175
Cent Plan	285	1,089	551	618	876	940	552	838	1,216
NE Asia	729	1,747	2,091	662	559	603	193	283	484
SE Asia	196	290	69	37	289	179	159	346	452
Europe	48	342	131	209	169	84	13	0	20
N America	280	741	327	15	10	0	0	0	1
Middle East	0	278	222	162	135	67	0	0	0
Other	7	0	357	46	3	18	17	11	2

At the same time that fresh kiwifruit imports have been growing very rapidly, exports of fresh kiwifruit from China's massive kiwifruit industry have been stagnant or declining. This is partly due to the strength of domestic demand, and partly due to the fact that Chinese exporters cannot yet compete on quality with major exporters like New Zealand or Chile.

The growth of Chinese imports of fresh kiwifruit in the last decade has certainly been impressive. However, exporters need to be cautious about placing too much reliance on the Chinese market. The Chinese authorities have temporarily blocked imports of many different agricultural products from many different countries with little warning. Their motives for such bans are rarely transparent, but getting those bans lifted has been both costly and time consuming.

Many of China's internal and external policies have been shaken up since Xi Jinping assumed control of the three major power bases in China, the communist party, the military and the Chinese government. Xi Jinping now serves all three roles of President of China, General Secretary of the Communist Party and Chairman of the Central Military Commission. Among Xi's goals are establishing China as a world power and fighting corruption in China.

The first goal has led China to be more assertive in international relations and international trade. The second goal has threatened the status quo in business relations. Many business, military and political leaders have been accused of corruption and lost their positions of power. Major western companies, like McDonald's, Walmart and Fonterra, have come under attack for their practices. In early 2015, principals in one of the major fruit importers, Dalian Yidu Group Ltd, were arrested by China Customs, apparently for evasion of customs duties. However, the secrecy surrounding the case raised concerns among exporters around the world about the integrity and security of deals made with Chinese importers. The moral of the story is that exporters need to proceed cautiously in expanding exports of fresh kiwifruit to China.

Other Kiwifruit Exporters

A number of other countries play a modest, or poorly documented, role in world exports of fresh kiwifruit. Of these, probably the most important is Iran. FAOSTAT data indicated that Iran's exports of fresh kiwifruit reached almost 78,000 metric tons, worth \$83.4 million, in 2011. The latest geographical breakdown is for 2010. In that year, 72 percent of Iran's exports were low-priced product that went to Middle Eastern countries, primarily Iraq, Turkey and the United Arab Emirates. Almost 25 percent went to Russia or its neighbors in Eastern Europe and Central Asia. Since then, efforts by traders to avoid sanctions have made it more difficult to trace the distribution of Iran's kiwifruit exports.

In recent years, United States exports of fresh kiwifruit have averaged about 10,000 metric tons annually. Over 60 percent of these exports have gone to Mexico, and a further 22 percent to Canada. Japan and Sweden have alternated between third and fourth place, with exports variable from year to year. Small quantities have gone mostly to other Asian and Latin American countries.

Exports of fresh kiwifruit from both Spain and Portugal have been similar in volume to those from the United States. Exports from Portugal have gone primarily to Spain. However, some of those exports may have been re-exported to other countries. Spain's exports have gone primarily to Portugal, other European countries and countries in North Africa. Some of these exports may have been re-exports of Southern Hemisphere product. A number of other countries that do not produce kiwifruit are reported to have exported fresh kiwifruit. These include countries like Hong Kong, Belgium, the Netherlands, and Germany that have land borders with other importing countries.

Importers of Fresh Kiwifruit

A small number of countries have dominated imports of fresh kiwifruit. These include Spain and Germany in Europe, in addition to Belgium and the Netherlands, that are centers for re-export of imported kiwifruit; the United States in North America; Brazil in South America; Japan and China in Asia; and Russia. In 2013, Germany, Russia, Spain and Belgium were reported to have imported over 100,000 metric tons of fresh kiwifruit, while Japan, the United States and the Netherlands imported about 60,000 metric tons.

Major Importers of Fresh Kiwifruit: Principal Sources, 2013 (metric tons)

Source	Spain	Germany	U.S.	Brazil	Japan	China	Russia
France	3,364	3,517	0	21	0	3,735	53
Greece	3,897	7,223	300	0	0	1,121	36,612
Italy	31,653	69,497	20,601	11,139	0	4,011	20,672
Portugal	13,456	2	0	23	0	0	0
Spain	0	126	19	0	0	0	53
Belgium	20,317	6	0	0	0	0	0
Netherlands	1,610	77	0	0	0	0	1
U.S.	0	0	0	0	651	0	0
Argentina	250	8	0	0	0	0	0
Chile	15,175	4,283	32,589	15,106	2,000	11,711	21,256
New Zealand	35,168	15,977	7,263	1,198	56,096	27,666	1,539
Iran	0	0	0	0	0	0	25,163
All Other	778	101	0	0	0	0	4,229
TOTAL	125,668	100,817	60,772	27,487	58,747	48,243	109,578

As one might expect, imports by these countries were dominated by the big five exporters, Italy, Greece and France in the Northern Hemisphere, and New Zealand and Chile in the Southern Hemisphere. The exceptions were Portugal's exports to its neighbor, Spain, and Iran's exports to Russia. Spain, Germany and Russia sourced a greater proportion of their imports from Northern Hemisphere than from Southern Hemisphere suppliers, while the United States, Brazil and China imported a greater proportion from Southern Hemisphere suppliers. Japan was exceptional in sourcing 99 percent of its imports from the Southern Hemisphere. Access to the Japanese market has been difficult due to rigid phytosanitary barriers.

Prospects for World Trade in Fresh Kiwifruit

World trade in fresh kiwifruit is likely to rebound over the next few years as the major exporting countries recover from the damage of PSA. Four of the major producing countries, New Zealand, Chile, Italy and Greece, are heavily export oriented. Of these, only Italy has a large domestic market that has shown little growth in recent years, so its increased production is also likely to end up in export markets.

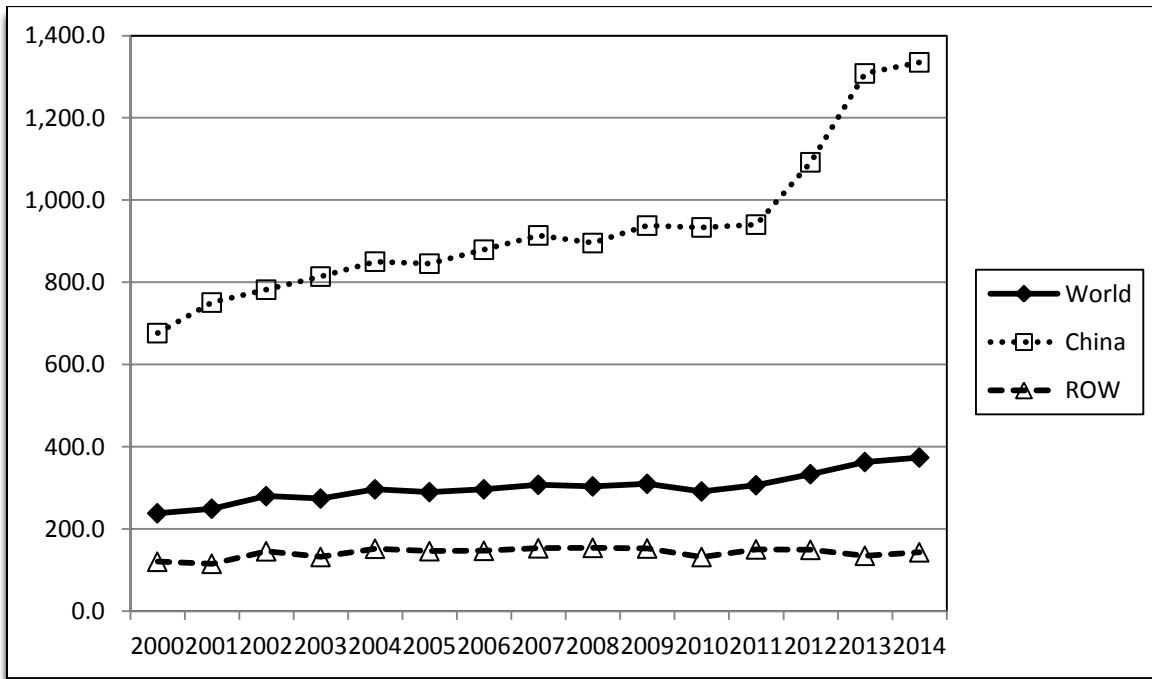
The major unknown is what will happen in China. Despite its very large production, the Chinese kiwifruit industry has been able to find satisfactory domestic markets for almost all of its output, and has not seriously challenged the traditional exporters in third countries. However, if further expansion of the Chinese kiwifruit industry coincided with a slowdown in domestic demand, the Chinese industry would be likely to become more aggressive in export markets. Its success in export markets would depend on its ability to match the quality standards of the current major exporters, something that it has not so far been able to achieve.

3. Consumption of Fresh Kiwifruit

China Influencing World Per Capita Availability

As a result of the revised data on the Chinese kiwifruit industry available this year from the UN,FAO FAOSTAT database, the picture of world per capita availability of kiwifruit has changed sharply from previous versions. Per capita availability in China, already five times that in the rest of the world (ROW) in the year 2000, has continued to grow rapidly, while per capita availability in the rest of the world has changed little since 2002. In contrast, per capita availability in China almost doubled between 2000 and 2014. This has caused an upward swing in average world per capita availability between 2011 and 2014, despite the depressing effect of PSA on production in the rest of the world. However, so far, almost all of China's production has been retained in China. Thus, consumption patterns have developed independently in China and in the rest of the world.

World: Kiwifruit Availability, China and Rest of the World, 2000-2014
(grams per capita)



Supplies for Consumption, by Country

In previous issues of the World Kiwifruit Review, we have examined supplies of kiwifruit for consumption among the major producing countries over long periods of time. However, those earlier years are increasingly irrelevant as kiwifruit have become an accepted part of the retail environment and have found a relatively secure niche among competing fruits. Accordingly, in this issue, we focus on more recent developments among the major kiwifruit producing countries. Three-year periods have been used to reduce the impact of temporary factors in any single season. Data are presented on the next page for the 12 major producing countries for which reasonably reliable data were available for the periods 2002-2005 and 2012-2015. The table shows how production, imports, exports, domestic disappearance, and domestic disappearance per capita have changed between the two periods.

In the 2002-05 period, two countries, Italy and New Zealand, recorded disappearance of kiwifruit of greater than 3 kilograms (3,000 grams) per capita. Three other countries in Europe, Greece, Spain and Portugal, recorded disappearance greater than 2 kilograms per capita. By 2012-15, only two countries, Greece and New Zealand, were estimated to have had disappearance of greater than 3 kilograms per capita, while only Italy and Spain registered greater than 2 kilograms per capita. Per capita disappearance fell in the major producing countries like Italy, New Zealand and France, and rose in minor producing countries, like the United States, Japan, South Korea and Australia. Among the three countries with the largest populations, China, the United States and Japan, only China recorded per capita disappearance greater than 1 kilogram in 2012-15.

Four of the five European countries recorded decreases in per capita disappearance between 2002-05 and 2012-15, with Greece being the exception. In addition to Greece, six other countries recorded substantial increases in per capita disappearance, the United States, China, Japan, South Korea, Australia and Chile.

The table also allows us to spotlight what contributed to the changes in per capita disappearance of kiwifruit in each of the major producing countries. Production increased between 2002-05 and 2012-15 in every country except France. However, exports increased in eight of the twelve countries, thus reducing domestic availability. The biggest increases in the volume of exports were recorded by Greece, Italy, New Zealand and Chile. Of these, Greece had by far the largest percentage increase as exports rose almost fivefold in the decade.

Major Kiwifruit Countries: Production, Trade and Domestic Disappearance, Selected Three-year Periods

Country	Period	Production	Imports	Exports	Domestic Disappearance	Domestic Disappearance
		(mt)	(mt)	(mt)	(mt)	(grams/p.c.)
Italy	2002-05	377,123	54,957	252,252	179,829	3,107
	2012-15	420,387	45,455	322,641	143,201	2,348
	% chg	+11.4	-17.3	+27.9	-20.4	-24.4
France	2002-05	76,450	55,290	28,966	102,775	1,708
	2012-15	62,000	54,998	23,415	93,583	1,456
	% chg	-18.9	-0.5	-19.2	-8.9	-14.8
Greece	2002-05	50,316	2,827	22,314	30,829	2,775
	2012-15	148,333	3,201	106,086	45,448	4,085
	% chg	+194.8	+13.2	+375.4	+47.4	+47.2
Spain	2002-05	10,942	120,776	9,008	122,710	2,919
	2012-15	23,288	124,961	13,586	134,663	2,870
	% chg	+112.8	+3.5	+50.8	+9.7	-1.7
Portugal	2002-05	10,866	11,645	1,128	21,383	2,043
	2012-15	18,435	10,535	9,777	19,193	1,809
	% chg	+69.7	-9.5	+766.8	-10.2	-11.5
United States	2002-05	23,224	38,239	11,035	50,428	173
	2012-15	26,823	59,527	10,116	76,234	238
	% chg	+15.5	+55.7	-8.3	+51.2	+37.6
China	2002-05	1,050,000	29,588	300	1,079,288	816
	2012-15	1,672,873	54,400	1,478	1,725,795	1,246
	% chg	+59.3	+83.9	+392.7	+59.9	+52.7
Japan	2002-05	35,400	53,326	10	88,716	703
	2012-15	37,500	62,593	25	100,068	787
	% chg	+5.9	+17.4	+150.0	+12.8	+11.9
South Korea	2002-05	11,833	15,394	18	27,209	583
	2012-15	12,167	26,000	4	38,163	775
	% chg	+2.8	+68.9	-77.8	+40.3	+32.9
Australia	2002-05	3,333	15,954	1,831	17,456	879
	2012-15	5,500	22,167	367	27,300	1,174
	% chg	+65.0	+38.9	-80.0	+56.4	+33.6
Chile	2002-05	132,667	0	120,183	19,817	1,242
	2012-15	203,208	8	175,843	27,374	1,556
	% chg	+53.2	n.a.	+46.3	+38.1	+25.3
New Zealand	2002-05	265,165	744	249,018	16,891	4,201
	2012-15	329,816	817	316,312	14,321	3,178
	% chg	+24.4	+9.8	+27.0	-15.2	-24.4

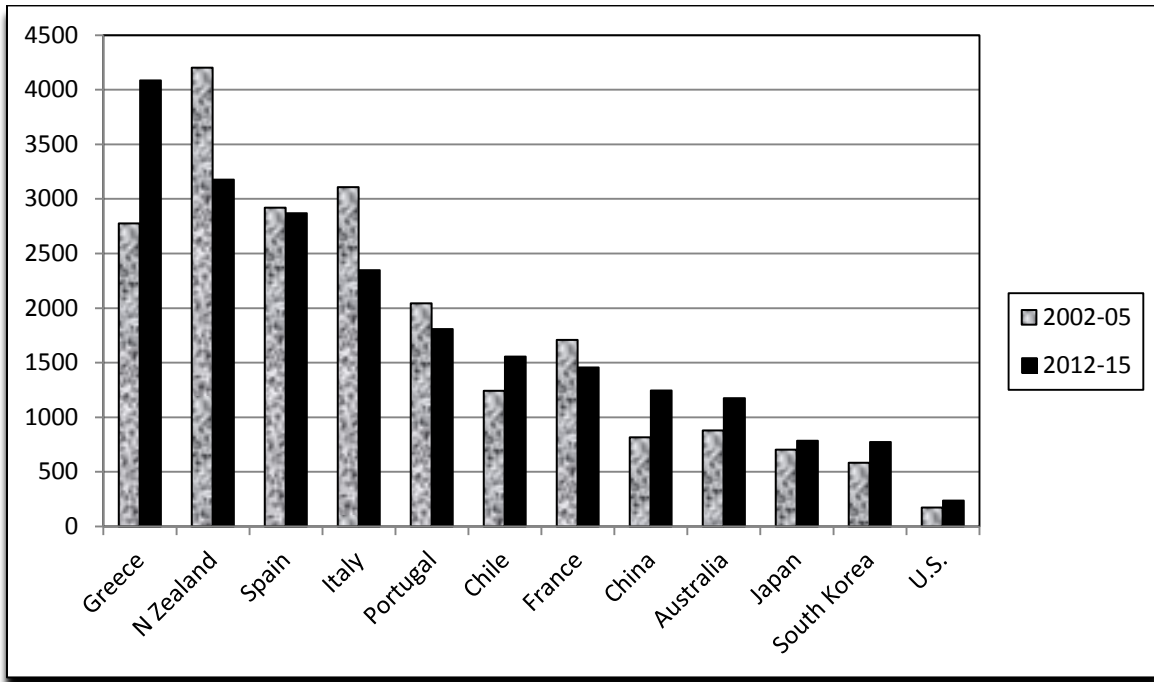
Imports also play a significant role in the availability of kiwifruit supplies in any country. This is particularly true for Spain, the United States, Japan and South Korea, where domestic production is relatively low. The smallest percentage increase over the decade in imports was for Spain, but that was probably affected by the severe recession that hit Spain after its housing bubble burst in 2008. For similar reasons, Italy's imports fell and Greece's imports remained relatively low. Not surprisingly, imports for major exporters like Chile and New Zealand remained low.

After the effects of changing production and trade were accounted for, domestic disappearance of kiwifruit rose in eight countries, and fell in four others. The biggest percentage increases in disappearance were in the United States, China and Australia. However, changes in the size of a country's population also affect per capita domestic disappearance. Per capita disappearance of kiwifruit fell in four of the five European countries, Italy, France, Spain and Portugal. The only other country reporting a decline was New Zealand. However, estimating domestic disappearance in a country like New Zealand, where most production is destined for export, can be easily distorted by small changes in estimates of exports, so that figure needs to be treated with caution.

The chart on the next page presents the data in visual form for per capita disappearance for the 12 countries, arrayed from left to right, from largest to smallest, in the 2012-15 period. It shows the wide disparity between countries both for the same period and over time. Per capita disappearance in Greece in 2012-15, where domestic production has ballooned in the last decade, was more than 17 times as large as that in the United States, where a wide variety of domestic and imported fruits compete for the consumers' attention. In 2012-15, per capita disappearance was greater than 2 kilograms in five countries, was between 1 and 2 kilograms in four countries, and below 1 kilogram in three countries. There were also very substantial changes in per capita disappearance between 2002-05 and 2012-15. Ironically, per capita disappearance tended to decline in the countries that had the highest per capita disappearance in 2002-05 and to rise in those that had the lowest per capita disappearance in 2002-05.

There are no easy explanations for the wide disparity in per capita disappearance of kiwifruit between countries and over time. For example, per capita income alone would be a poor predictor of per capita disappearance. It is likely that traditional patterns of consumption, individual consumer preferences, relative availability and prices of competing fruits, and other factors affect per capita disappearance. However, detailed country studies would be needed to trace cause and effect.

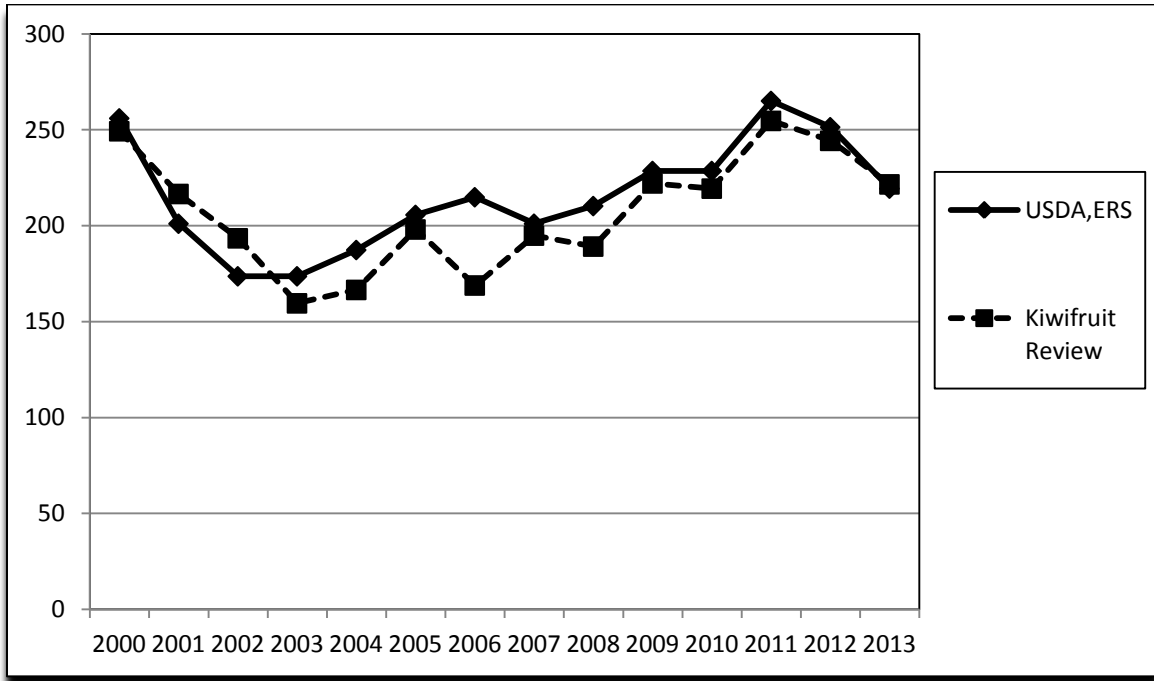
Major Producing Countries: Per Capita Disappearance, 2002-05 and 2012-15 (kilograms per capita)



Reliability of Disappearance Data

It is difficult to measure how reliable the system used above might be in estimating per capita disappearance of kiwifruit for most countries. The only comparable data series is that generated each year for the United States, by the USDA's Economic Research Service. The chart below compares the series we developed for per capita disappearance of kiwifruit in the United States with that developed by USDA,ERS for what they define as "per capita use." USDA,ERS uses a similar system, usually referred to as the PS&D (production, supply and demand) system for many products. The USDA,ERS and Belrose, Inc. estimates for kiwifruit in the U.S. move very closely together, indicating that they are both measuring similar phenomena. This should provide considerable assurance that the data series reported here for the eleven other major producing countries are a fair representation of both levels and trends in per capita disappearance.

United States: Comparison of Per Capita Disappearance Data for Kiwifruit with USDA,ERS Per Capita Use Data, 2000-2013 (grams)



Consumption in Non-Producing Countries

The data above indicate that per capita disappearance has been running into an upward ceiling in countries that have traditionally been the largest producers of kiwifruit. Accordingly, there will be increased pressure on producing countries to expand sales to non-producing countries. Initially, exports were targeted primarily to higher-income countries in Europe. In these non-producing countries, per capita consumption of fresh kiwifruit in any year should approximately equal fresh imports minus fresh exports divided by population. Population data were drawn from the UN,FAO FAOSTAT web site, as were import and export data through 2011. More recent trade data were drawn from EUROSTAT or the United Nations Comtrade database. The table below shows revised estimates of per capita consumption of fresh kiwifruit for the 10 non-producing countries that were members of the EU-15 prior to expansion in 2004, and for 12 of the New Member states (NMS) that joined the EU in 2004.

**Non-Producing European Union Member Countries: Per Capita
Consumption of Fresh Kiwifruit, Calendar Years, 2002-2013
(Average annual grams per capita)**

Region	Country	2002-04 Average (grams)	2005-07 Average (grams)	2008-10 Average (grams)	2011-13 Average (grams)
EU-15	Austria	915	1,228	1,270	1,336
	Belgium	n.a.	1,897	2,239	1,494
	Denmark	680	774	992	744
	Finland	490	578	627	633
	Germany	1,081	1,397	1,371	1,171
	Ireland	609	852	970	892
	Luxembourg	1,539	1,529	2,102	2,021
	Netherlands	992	1,280	2,053	2,797
	Sweden	934	1,102	1,124	1,103
	United Kingdom	528	653	556	493
	Subtotal	849	1,121	1,173	1,087
EU-28,NMS	Bulgaria	316	421	232	340
	Croatia	425	479	741	726
	Cyprus	789	963	1,004	877
	Czech Republic	1,065	1,299	1,158	729
	Estonia	558	749	922	720
	Hungary	688	424	337	305
	Latvia	785	802	827	864
	Lithuania	503	370	354	266
	Malta	1,427	1,209	1,369	1,301
	Poland	421	661	590	537
	Romania	111	359	289	342
	Slovakia	709	1,174	975	850
	Subtotal	478	640	570	509

On average, the non-producing countries of the EU-15 consumed less than half the level of fresh kiwifruit per capita as did the producing countries. In turn, the non-producing New Member States (NMS) of the EU had less than one quarter the level of per capita consumption reported by the EU producing countries. Only 3 of the 10 EU-15 non-producing countries recorded increases in per capita consumption in each successive three-year period. Among NMS countries, only Latvia achieved that feat. This may have been due partly to recessionary conditions after 2008.

Among EU-15 member countries, two, Luxembourg and the Netherlands, had per capita consumption of fresh kiwifruit above 2 kilograms, while four others, Austria, Belgium, Germany and Sweden, exceeded 1 kilogram per capita. Per capita consumption was furthest below average in the United Kingdom, Finland, Denmark and Ireland. Only one of the NMS countries, the small island of Malta, had per capita consumption of fresh kiwifruit exceeding 1 kilogram. Three other small countries, Cyprus, Latvia and Slovakia, had per capita consumption closest to 1 kilogram. Four countries, Bulgaria, Hungary, Lithuania and Romania, had per capita consumption of less than half a kilogram. In general, these data are not reassuring about the potential for increased per capita consumption of fresh kiwifruit in the non-producing countries of the EU.

The table below looks at per capita consumption of fresh kiwifruit in countries outside the EU for the same three-year periods, and using the same methodology as before. To simplify presentation, we focused only on regions and countries that have relatively high per capita consumption, or that have large populations, like Brazil, with over 200 million people, or South Asia, with almost 1.3 billion people. Included are the three individual countries, Norway, Switzerland and Hong Kong, that consumed more than 1 kilogram of fresh kiwifruit per capita in the 2011-13 period. However, like many other countries in Europe, Iceland, Norway and Switzerland experienced a slowdown in per capita consumption of fresh kiwifruit in the 2011-13 period. Consumption trends were quite erratic in the Middle East. It is not clear whether that is due to misreporting of data, or to diversions of fruit because of the strife in that region.

Among the heaviest consuming countries, only Hong Kong had experienced growth in per capita consumption in every period studied. However, this was also the case for numerous other countries and regions, including the Russian Federation, Singapore, and all five countries listed in the Americas, and all four of the minor consuming regions, Africa, Central America/ Caribbean, Southeast Asia and South Asia. This suggests that exporters have been successful in rapidly expanding distribution and sales in these markets. With rising affluence and the growing presence of modern retailing outlets in these countries, that growth in per capita consumption of fresh kiwifruit is likely to continue. A number of other countries not shown here, such as Azerbaijan, Macau, Albania and Bosnia, also have shown the potential for increased per capita consumption of fresh kiwifruit, admittedly from a relatively low base.

**Non-Producing Countries outside the EU: Per Capita
Consumption of Fresh Kiwifruit, Calendar Years, 2002-2013
(Average annual grams per capita)**

Region	Country	2002-04 Average (grams)	2005-07 Average (grams)	2008-10 Average (grams)	2011-13 Average (grams)
Other West Europe	Iceland	862	870	713	715
	Norway	766	960	1,066	1,044
	Switzerland	1,197	1,396	1,599	1,405
	Subtotal	1,148	1,219	1,374	1,252
Russian Federation	Subtotal	193	348	476	695
East Asia	Hong Kong	728	1,022	1,491	1,575
	Singapore	486	541	681	701
Middle East	Bahrain	2,381	1,911	1,733	n.a.
	Saudi Arabia	324	287	283	475
	UA Emirates	1,002	783	1,237	n.a.
	Oman	812	578	284	347
	Qatar	2,030	1,192	1,364	339
	Subtotal	164	191	202	178
Americas	Canada	452	582	644	615
	Mexico	73	90	96	109
	Argentina	81	116	198	284
	Brazil	31	38	76	133
	Colombia	21	33	46	97
Africa	All	5	14	20	40
C America/Caribbean	All	10	17	21	32
Southeast Asia	All	13	13	28	32
South Asia	All	0.2	0.9	1.5	3.9

Clearly, the kiwifruit industry will need to expand exports in the future. Equally clearly, opportunities exist for export expansion in many countries and regions. The chief need is for the industry to get improved information on the different markets so it can focus its scarce resources on the markets where the return on investment will be highest.

4. Prices of Fresh Kiwifruit

Many Influences on Prices

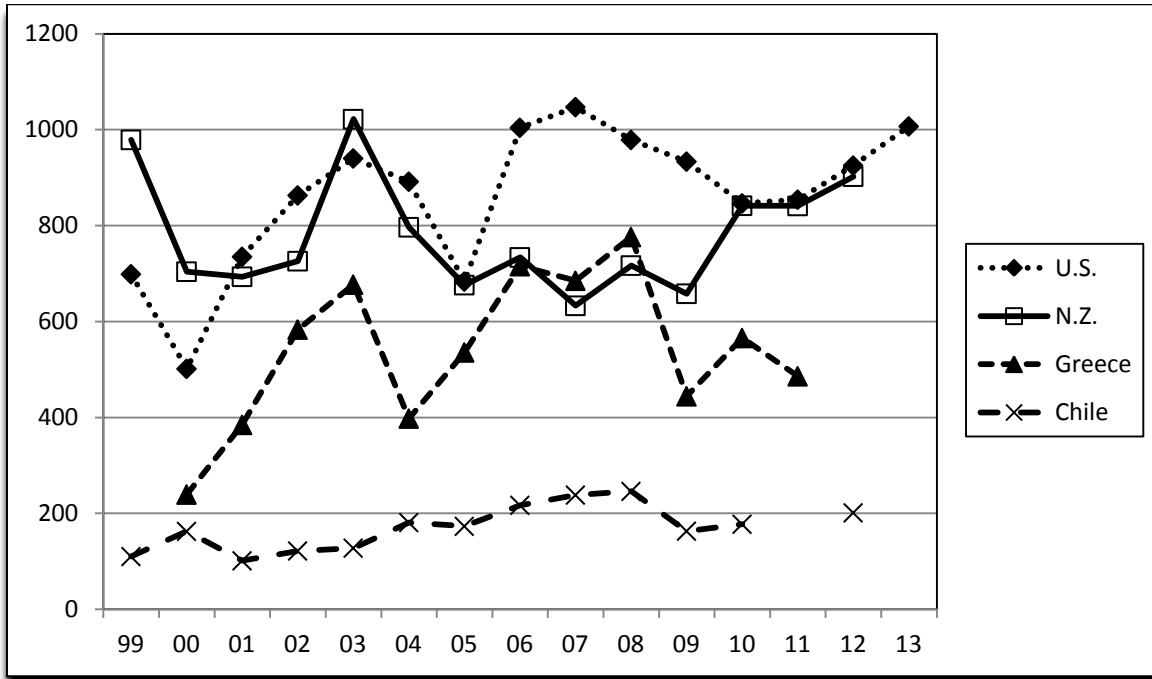
The reduction of supplies of fresh kiwifruit due to PSA has provided some boost to prices, and has provided compensation to some of the producers, packers and marketers that were injured by losses to PSA. However, many other factors, both within the global kiwifruit industry, and in the worldwide economy, also continue to affect kiwifruit price trends at every level of the marketing system. Because kiwifruit is a relatively minor crop in many countries, there is no large, consistent source of information on prices. Accordingly, the story on prices has to be pieced together from many different, and not always compatible sources.

International Comparisons of Prices

Data are available from the UN,FAO on producer prices of kiwifruit in selected countries over a long period of time. However, the series is far from complete, and often not as up-to-date as one might wish. The chart below shows price data from the UN,FAO database for four major kiwifruit producing countries, the United States, New Zealand, Greece and Chile. These show widely different patterns and levels of prices. In general, producer prices in the United States and New Zealand have been higher over time than those in Greece and Chile, with the United States and New Zealand alternating as the highest. The high price for the United States is to be expected, given that the United States is a major net importer. Thus, its producers face competition primarily from imported product that has had to sustain a large transportation charge. However, the high producer prices for New Zealand indicate that the New Zealand kiwifruit industry has been able to sell product in distant markets and absorb heavy transportation costs while returning a relatively high price to its producers. To do this, New Zealand has had to be able to earn a premium for quality.

In contrast, the relatively low price received by Chilean producers indicates that they have not been able to offset high transportation costs by gaining a comparable premium for quality in distant markets. Producer prices for Greece have generally occupied an intermediate level. While Greece is also a large net exporter, it is much closer to most of its major markets than either New Zealand or Chile. However, its export prices have tended to be lower than those of its major European competitors such as Italy and France.

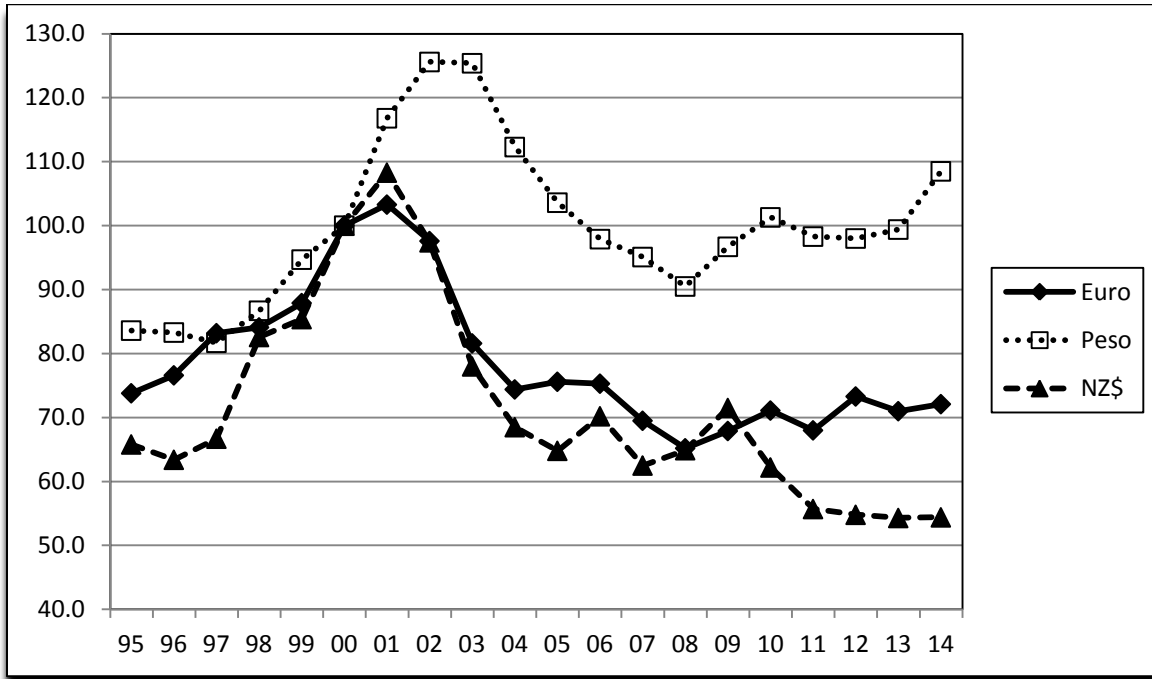
Major Producing Countries: Producer Prices of Kiwifruit, 1999-2013 (US\$ per metric ton)



The chart above also shows considerable volatility of producer prices in all four countries. Much of that volatility is due to changes in the volume of domestic and competing supplies. Because of the scale of the chart, volatility appears to have been less in Chile. However, that is not the case. For example, producer prices of kiwifruit in Chile fell by over 30 percent between 2000 and 2001 and again between 2008 and 2009. The chart also indicates a mild recovery in producer prices after 2010 in the United States, New Zealand and Chile, the three countries for which data were available.

The data available from the UN,FAO, presented in U.S dollars in the chart above, is useful in allowing international comparisons to be made. However, they can be misleading for two major reasons. They do not take account of inflation, which can erode the value of any unit of currency over time. Neither do they take account of fluctuations in exchange rates which cause the value of a dollar, euro or yen earned in export markets to be worth less or more in local currency (the currency in which growers are normally paid) in different years.

Major Producing Countries: U.S. Dollars per Selected Currency, 1995-2014 (Index, Year 2000 Rate = 100)



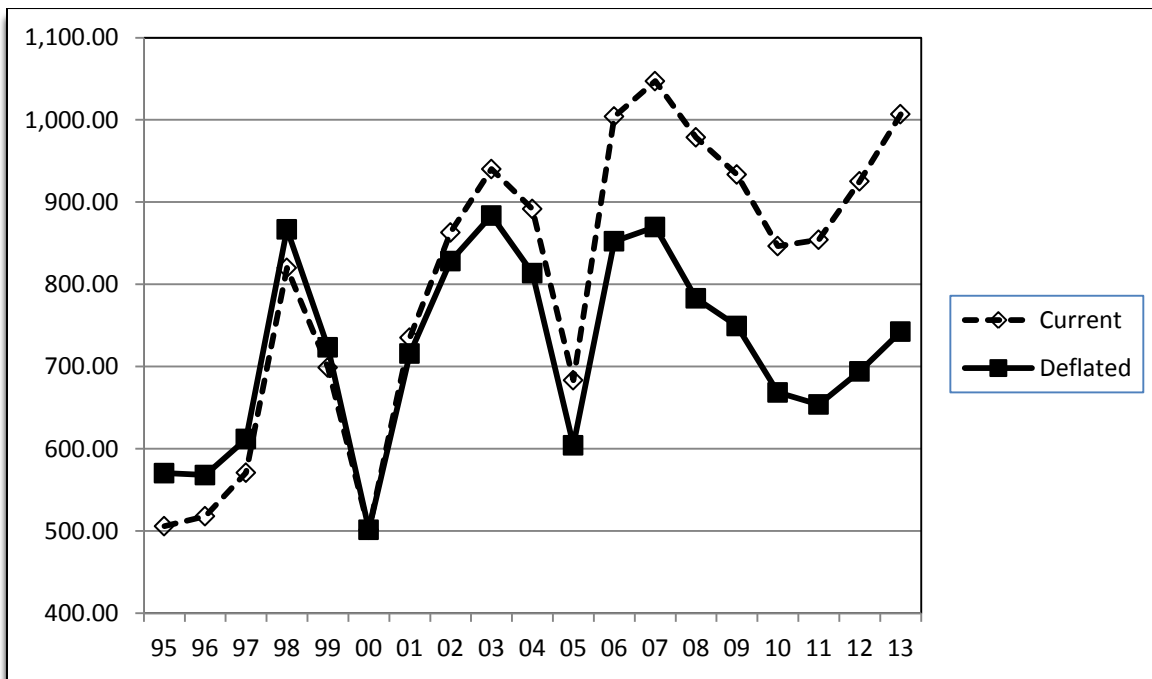
The chart above shows how the exchange rates of the euro (used by major exporters like Italy, Greece and France), the Chilean peso, and the New Zealand dollar have varied against the U.S. dollar over the last two decades. The U.S. dollar is used as an example because of its importance in the global fruit trade. The exchange rate for each currency is presented relative to the exchange rate for that currency in the base year 2000. All three currencies weakened substantially against the U.S. dollar between 1995 and 2001. The Chilean peso continued to weaken into 2003. During the 1995-2001 period, European, Chilean and New Zealand exporters became more price competitive, and the returns in domestic currency received a major boost, about 40 percent for producers in Europe, 50 percent in Chile and 65 percent in New Zealand. Between 2001 and 2008, the reverse happened. All three currencies strengthened against the U.S. dollar, penalizing their exporters and producers. Between 2009 and 2014, the fates of the three currencies diverged. The euro weakened against the U.S. dollar by about one percent, and the Chilean peso weakened by about 2 percent, per year. In contrast, the New Zealand dollar strengthened by over 30 percent. Thus, New Zealand exporters continued to have an exchange rate disadvantage in selling into major European markets that used the euro currency.

For all three, currency values remained less favorable in 2014 than they were in 2001. However, exchange rates remained highly volatile in the first half of 2015, so the situation could again be reversed. Fluctuations in exchange rates are likely to continue to affect returns to kiwifruit producers for the foreseeable future.

Effect of Inflation on Prices

The effect of changes in exchange rates are easily observed because changes in rates are reported daily in the media, and accessible instantaneously if required. However, the effect of inflation (a general rise in price levels), or its opposite, deflation, operate under the radar, but can gradually erode value over time. We focus here on the effects of inflation, because that has been a more common phenomenon in the last century. However, deflation has become a concern in a few major economies in the last two or three years. The chart below shows how inflation in the United States affected grower prices of kiwifruit between the 1995 and 2013 seasons.

United States: Current and Deflated Grower Prices of Kiwifruit, 1995-2013
(US\$ per metric ton)



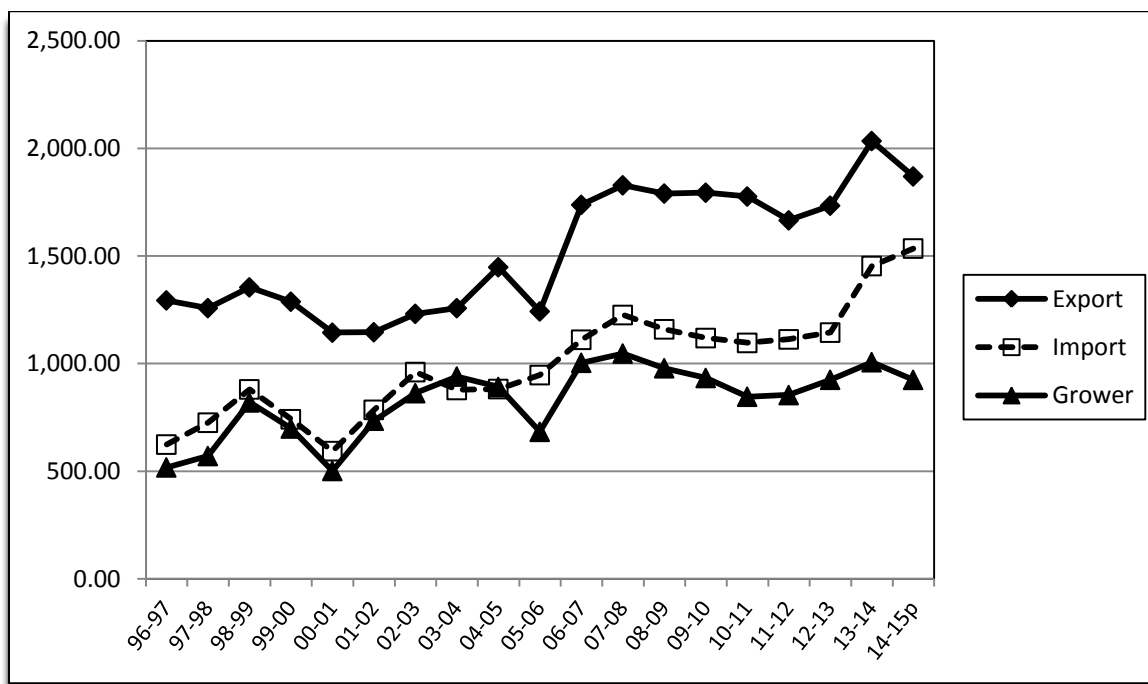
In current dollar terms (dashed line), grower prices set new records in 1998, 2003 and 2007. However, when grower prices were deflated by an index based on prices in the year 2000 = 100, the peak prices in 2003 and 2007 were very similar to that of 1997. Deflated price in 2011 was 23.5 percent below the current price, and the price recovery in 2012 and 2013 was much weaker than would appear from viewing the current prices. A dollar earned in 2013 had 35 percent less purchasing power than a dollar earned in 1995. Thus, over the 20 year period, the value of the U.S. dollar was eroding by an average of almost 2 percent per year. Most other currencies around the world suffered similar erosion of purchasing power, so growers elsewhere would also have seen inflation erode their purchasing power. The only antidote to such inflation is to generate greater increases in prices, a difficult task in fruit markets.

Deflation, a general fall in prices, presents different problems for fruit producers. Most producers of perennial crops must borrow all or part of the sums needed to invest in new orchard plantings or renewals, or for the related storage and packing facilities. Inflation is the friend of the borrower, because loan repayments can be made in deflated dollars. In contrast, deflation is the enemy of the borrower. Loan repayments will have to be made in more expensive dollars. An economy-wide worry about deflation is that it will cause consumers to delay purchases of durable goods, such as cars or appliances, in hope of buying later at reduced prices. If many consumers do this, it can slow overall demand, cause businesses to reduce investment, and trigger a downward economic spiral. For that reason, governments and their monetary authorities have instituted various policies to ward off deflation. The outcome of their efforts are still uncertain.

Trade Links to Domestic Prices

The world kiwifruit industry is heavily involved in world trade. As shown in chapter 3, all the major producing countries are also involved in exporting and importing of fresh kiwifruit. As a result, there are strong links between domestic prices and the prices of imported and exported fruit. An example of the links between domestic and external prices is available for the United States, shown in the chart below. Although the United States is a major net importer of fresh kiwifruit, it also has a stable business in exporting fresh kiwifruit, especially to the neighboring countries of Canada and Mexico. As one might expect, import and export prices tend to move closely in step, since both are subject to the same global market influences. However, since the arrival of PSA, domestic prices have increasingly deviated from prices in foreign trade.

United States: Export, Import and Grower Prices of Fresh Kiwifruit, 1996-2014 (US\$ per metric ton)



European Competition for Export Markets

The level of supplies available from exporting countries, the quality of those supplies, and the competitive pricing strategies followed by each country, also affect the level of prices in each country from year to year. In western Europe, there has for many years been intense competition between the three leading kiwifruit exporting countries, Italy, France and Greece. While average export prices have changed substantially from season to season, there has also been surprising stability in the relationship between export prices for the three countries. As by far the largest exporter of fresh kiwifruit, export prices for Italy have remained close to the three-country average. However, French export prices have consistently enjoyed a substantial premium over those from Italy, while Greek export prices have sold at a substantial discount. For the five-year period, 2006-2011, French prices gained a 49.5 percent premium over Italian prices, while Greek prices were at a 26.3 percent discount. For the three most recent seasons, the French price premium was 40.1 percent and the Greek price discount 26.5 percent.

Italy, France and Greece: Export Prices of Fresh Kiwifruit, 1991-92 to 2013-14 (euros per kilogram)

Season	Italy	France	Greece	3 Countries
1991-96 Average	0.70	0.90	0.69	0.72
1996-01 Average	0.80	1.18	0.58	0.83
2001-06 Average	0.93	1.46	0.68	0.98
2006-11 Average	0.95	1.42	0.70	0.96
2001-02	1.09	1.46	0.77	1.12
2002-03	1.01	1.55	0.72	1.06
2003-04	1.00	1.57	0.74	1.08
2004-05	0.72	1.28	0.53	0.77
2005-06	0.86	1.38	0.63	0.90
2006-07	0.81	1.29	0.63	0.84
2007-08	1.15	1.62	0.80	1.17
2008-09	0.93	1.46	0.74	0.96
2009-10	0.82	1.26	0.59	0.82
2010-11	1.02	1.49	0.76	1.00
2011-12	0.83	1.23	0.72	0.85
2012-13	1.12	1.54	0.72	1.04
2013-14p	1.14	1.56	0.83	1.13

Influence of Marketing Margins on Prices

The prices received for packed kiwifruit FOB shipping point are heavily influenced by the level at which retail prices are set, and by the marketing margins that retailers choose to take. But retail prices and marketing margins are set with a number of considerations in mind. One is the expected reaction of consumers. Consumers do not like to be shocked by a price that is above or below the recent normal range. A second is the relative aggressiveness of competing retailers. For example, when a single, large retailer consistently keeps banana prices low, other retailers are forced to follow suit, since many consumers see banana prices as an indicator of the price competitiveness of a retailer. Finally, retailers must be able to capture sufficient margins on all the products they sell in order to remain profitable. Many factors affect where retailers set margins. However, once typical margins are set for any product, they tend to change very slowly over time. The table below shows grower prices, FOB packed prices and retail prices for fresh kiwifruit between 2000 and 2014 in Metropolitan areas of France.

**France: Average Retail, Sales and Grower Prices for Kiwifruit,
2000 to 2014
(Euros per kilogram)**

Year	Grower Price (euros/kg)	FOB Packed Price (euros/kg)	Retail Price, Metro (euros/kg)	Grower-FOB Margin (euros/kg)	FOB-Retail Margin (euros/kg)
2000	0.49	0.91	3.09	0.42	2.18
2001	0.84	1.11	3.13	0.37	2.02
2002	0.84	1.48	3.47	0.64	1.99
2003	0.74	1.39	3.84	0.65	2.45
2004	0.51	1.38	3.85	0.87	2.47
2005	0.61	1.15	3.53	0.54	2.38
2006	0.61	1.21	3.58	0.60	2.37
2007	0.86	1.23	3.07	0.37	1.84
2008	0.72	1.53	3.85	0.81	2.34
2009	0.47	1.28	3.46	0.81	2.18
2010	0.66	1.15	3.39	0.49	2.24
2011	0.58	1.29	3.60	0.71	2.31
2012	0.78	1.27	3.67	0.49	2.40
2013	0.82	1.42	3.86	0.60	2.44
2014p	n.a.	1.47	4.32	n.a.	2.85

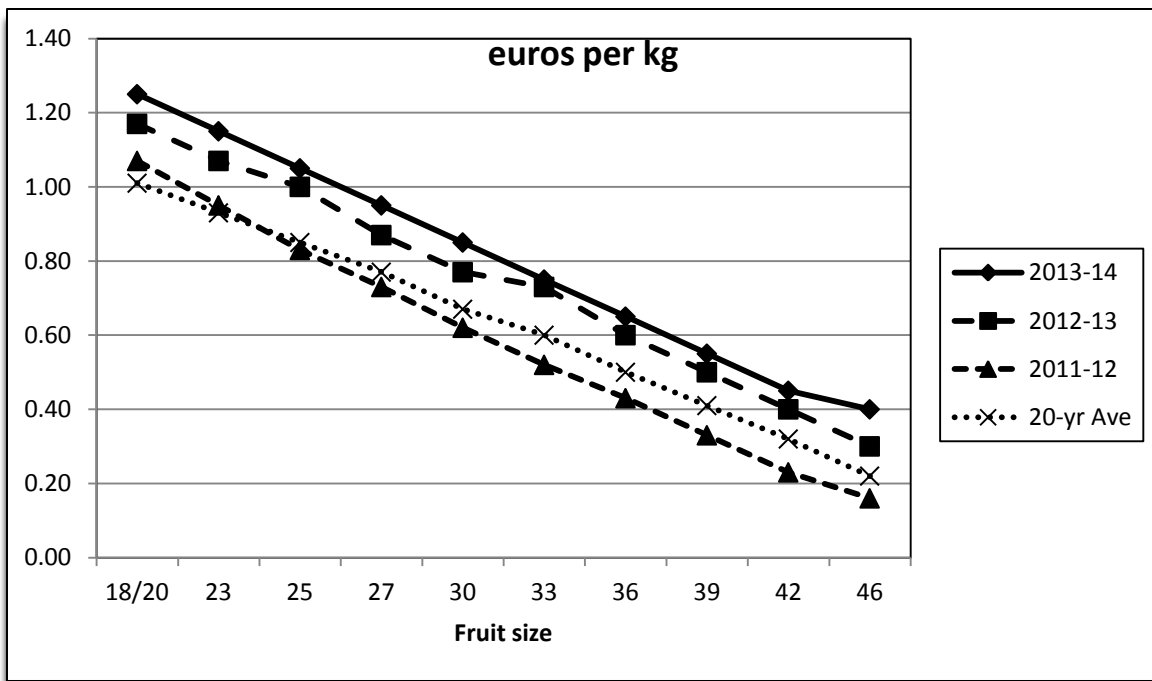
While the prices at each level of the marketing chain have fluctuated substantially from year to year, as have the margins between grower price and FOB packed price, the margins between FOB and retail have stayed consistently above 2 euros per kilogram. On average the FOB-retail margin has accounted for over 64 percent of the retail price. This is consistent with estimates for similar fruit products in France and other countries. On average, French growers received slightly less than 20 percent of the retail price, a figure that is also consistent with other fruit products in other countries.

It is notable, that there was little evidence of inflation in the prices of fresh kiwifruit at any level in the marketing channel for most of the period studied, even though the French economy as a whole experienced modest inflation during that period. This suggests that supply and demand remained in relative equilibrium during that period. The retail price of 3.85 euros per kilogram was reached in both 2004 and 2008, but that price was not exceeded again until 2013. Some of this may have been due to the lingering effects of the global financial crisis after 2008.

Effects of Fruit Size on Prices

The size of kiwifruit has a strong correlation with prices at different levels of the marketing chain. The chart below shows the orchard gate returns to French kiwifruit growers for the three most recent seasons, 2011-12, 2012-13 and 2013-14, and for the average of the last 20 seasons. One caution on this data is that sizes are not exactly uniform for different countries. On average, the orchard gate return to the French grower was twice as high for the largest sized kiwifruit as for size 36 kiwifruit. In turn, prices for size 36 kiwifruit were more than twice those for size 46 kiwifruit. However, there is usually a reverse relationship between fruit size and the number of fruit produced. In general, production methods used to get greater size also lead to fewer marketable fruit per vine. Accordingly, each producer must make a decision for his or her orchard about what mix of sizes will generate the greatest net return. Unfortunately, this decision is complicated by the fact that Mother Nature can affect the average size level in any year. However, over a number of seasons, producers are encouraged to aim to produce as much fruit as possible in the mid-size range between size 27 and size 36.

**France: Orchard Gate Returns for Kiwifruit,
by Fruit Size, Selected Years**
(euros per kilogram)

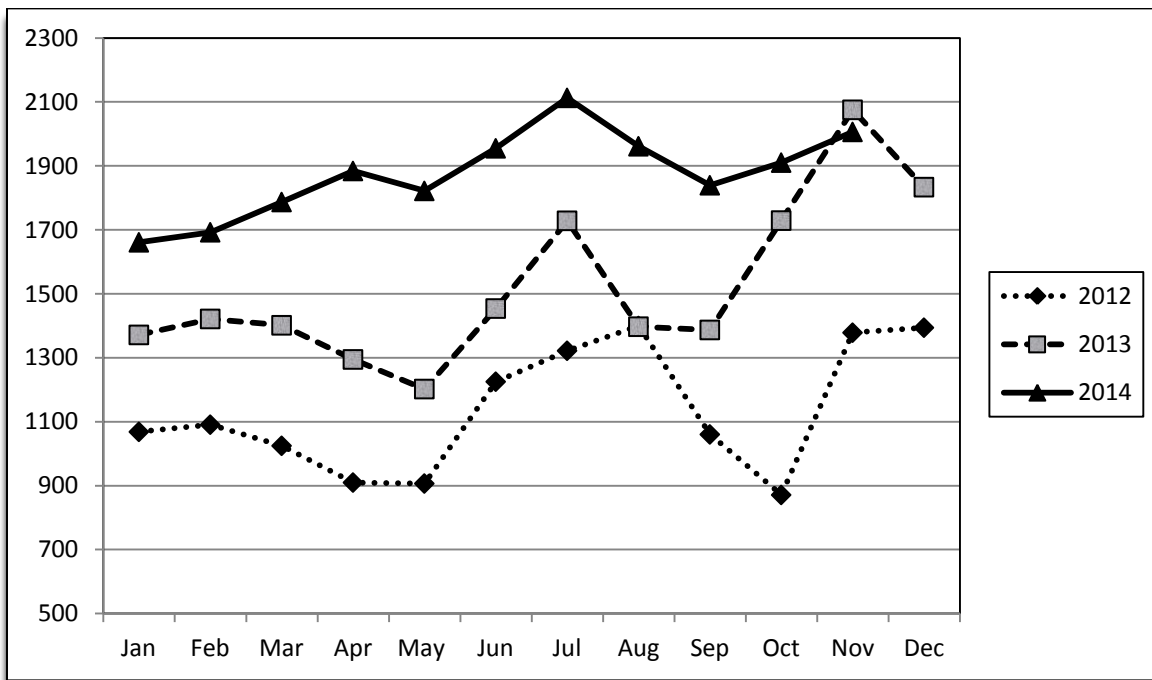


Lingering Effects of PSA on Prices

Because the PSA outbreak caused severe and intense setbacks to kiwifruit production, especially in the second largest world exporter, New Zealand, one would expect to see that impact reflected in prices throughout the world. The next two charts trace the potential effects in two key import markets, the United States and Japan.

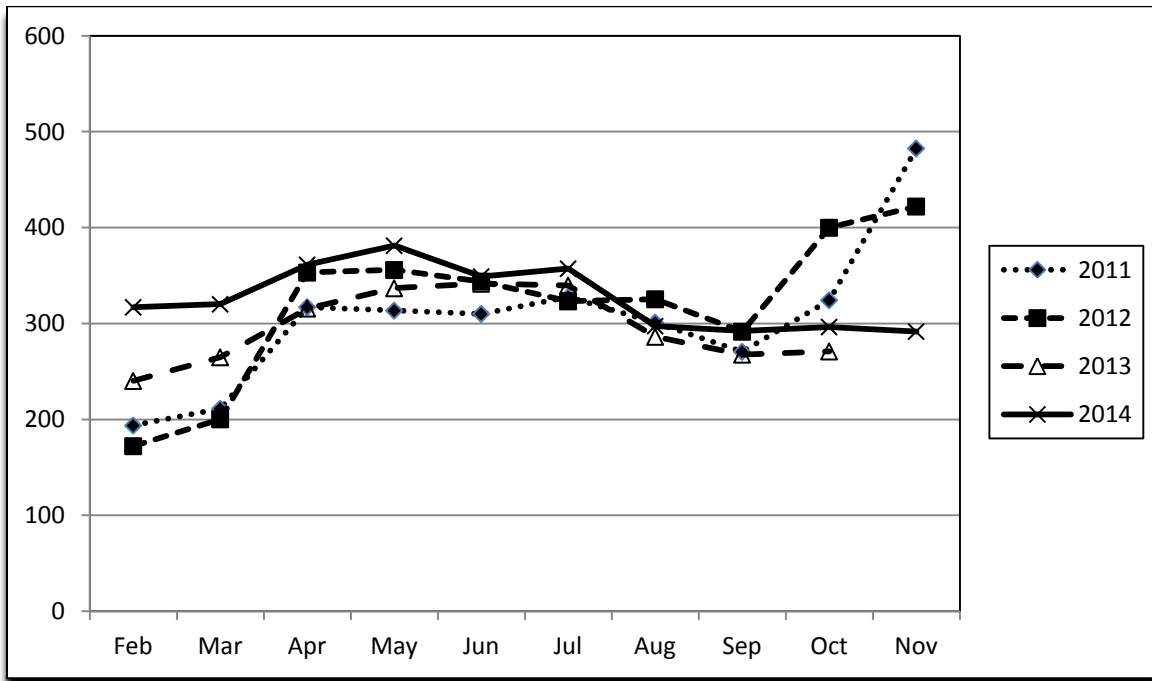
In the case of the United States, average monthly import prices in 2012 had a relatively normal seasonal pattern with perhaps more month to month fluctuations than usual. However, prices in 2013 opened at the same level as they ended 2012, and the level of prices in 2013 was substantially higher for all but the month of August. The pattern was repeated in 2014, with prices opening much higher in January, and maintaining sharp gains over the previous year until the new Northern Hemisphere crop became available in November 2014.

**United States: Average Monthly Prices of All Fresh
Kiwifruit Imports, 2012-2014**
(US\$ per metric ton)



What happened in the Japanese market in the aftermath of PSA is of particular interest because Japan was such an important market for the ill-fated golden kiwifruit. The chart below shows the average monthly import price of fresh kiwifruit in Japan for the four years, 2011 through 2014. Imports were dominated by supplies from New Zealand. During the months of heaviest shipments, between April and September, prices in all four years were quite similar, but prices in 2013 were slightly lower than those in 2012, while prices in 2014 were slightly higher than in the previous three years. During the early season, prior to April each year, prices in 2013 and 2014 were substantially higher than in 2011 and 2012, suggesting that there were temporary shortages in these early months. In the last three months of 2012 and 2013, prices rose very rapidly, as one would expect in a period of relative shortage. However, in the last three months of 2014, prices did not rise at all, suggesting that shortage of supplies was no longer an issue. This indicates that the supply shortages due to PSA had been alleviated by the end of 2014. In summary, there was modest price reaction in Japan to PSA-induced shortages, especially in the early months of 2012 and 2013, but the effects appeared to have worn off by late 2014.

Japan: Average Monthly Prices of All Fresh Kiwifruit Imports. April-November, 2011-2014
(1,000 yen per metric ton)



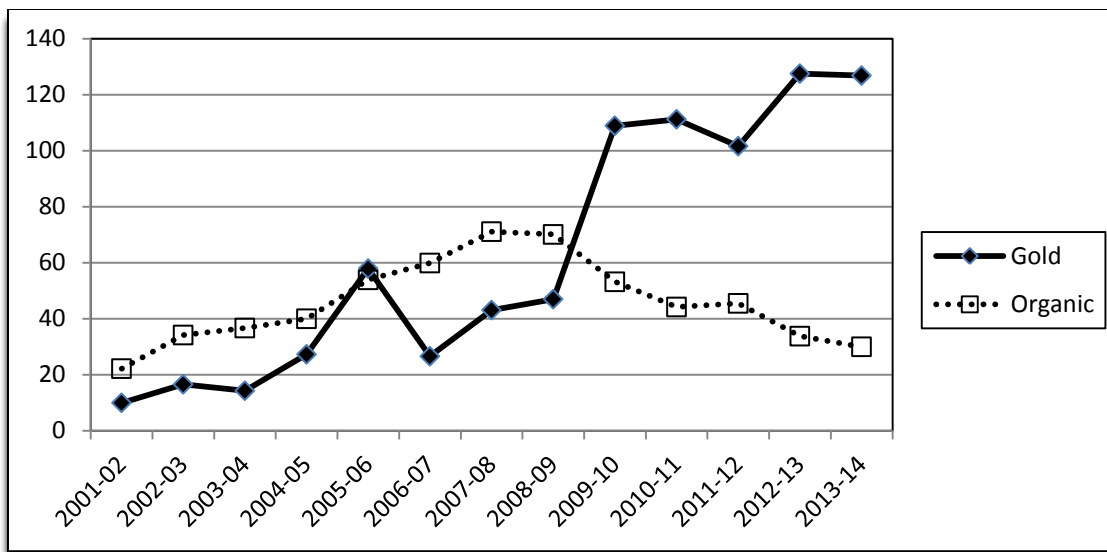
Influence of Cultivar on Kiwifruit Prices

There is little consistent data available on the influence of different cultivars on price except in New Zealand where long time series of data are available. Unfortunately, the data available include the combined effects of the different cultivars and of the branding system that the New Zealand industry has used to increase the market value of its different cultivars. The Zespri trademark was used to distinguish cultivars from New Zealand that were deemed to be superior in value to the same cultivars grown under systems different from those of New Zealand. The table below shows annual average prices returned to New Zealand kiwifruit growers at the orchard gate for Zespri™ Green Hayward, Zespri™ Green Organic Hayward and Zespri™ Gold (Hort 16A) for the seasons beginning in 2001-02. Data are also presented for two newer cultivars, Green 14 and Gold 3, for more recent seasons. While prices of the three Zespri™ products tended to move in step, the premiums have varied over time, as shown in the chart below.

New Zealand: Orchard Gate Returns, by Product, 2001-15 (NZ\$ per tray)

Season	Zespri™ Green Hayward	Zespri™ Green Organic	Zespri™ Gold (Hort 16A)	Green 14 (New)	Gold 3 (New)
2001-02	4.51	5.51	4.96	n.a.	n.a.
2002-03	5.65	7.58	6.59	n.a.	n.a.
2003-04	6.35	8.68	7.26	n.a.	n.a.
2004-05	4.32	6.05	5.50	n.a.	n.a.
2005-06	3.47	5.34	5.48	n.a.	n.a.
Ave. 2001-06	4.24	6.63	5.96	n.a.	n.a.
2006-07	4.09	6.54	5.18	n.a.	n.a.
2007-08	3.11	5.32	4.45	n.a.	n.a.
2008-09	3.68	6.26	5.41	n.a.	n.a.
2009-10	3.70	5.67	7.73	n.a.	n.a.
2010-11	4.21	6.07	8.89	n.a.	n.a.
Ave. 2006-11	3.76	5.97	6.33	n.a.	n.a.
2011-12	3.80	5.53	7.66	n.a.	n.a.
2012-13	4.62	6.18	10.51	6.65	n.a.
2013-14	5.23	7.07	12.91	9.77	9.50
2014-15 Prelim	5.91	7.09	9.72	7.12	n.a.

**New Zealand: Orchard Gate Returns. Premiums for Zespri™
Green Organic and Zespri™ Gold over Zespri™ Green, 2001-14
(Percent above Zespri™ Green Price)**



The chart shows how the percentage premium for Zespri™ Gold over Zespri™ Green increased steadily over the decade, from less than 20 percent prior to 2003-04 to over 100 percent for the most recent five seasons. Unfortunately, the once substantial benefit to New Zealand kiwifruit growers has been wiped out by the collapse of Zespri™ Gold production under the assault of PSA.

Given all the hype about the growing market for organic products in Europe and North America, the New Zealand kiwifruit industry invested heavily in developing regulations and systems to expand organic production of Hayward, and marketing it under the Zespri™ Green Organic label. As the chart shows, the organic premium rose from 20 percent in 2001-02 to over 70 percent in 2007-08 and 2008-09. Even at that level, producers were reluctant to expand organic production because they believed that the higher revenue did not compensate them for the lower yields and extra costs involved. Since that time, the organic premium has fallen by more than half, to 30 percent in 2013-14. Recessionary conditions since 2008-09 have made higher-priced organic products less affordable for consumers in many markets.

New Zealand: Returns from Kiwifruit Exports, 2001-14 (Volume (million trays) and Grower Payments¹ (NZ\$ per tray))

Product	Unit	2001-03 Average	2004-06 Average	2007-09 Average	2010-12 Average	2012-13 Annual	2013-14 Annual
Zespri™ Green	Trays (m)	50.7	61.4	73.3	73.8	70.4	68.9
	NZ\$/tray	8.04	7.04	6.91	7.53	7.68	8.15
Zespri™ Green Organic	Trays (m)	2.4	2.6	3.1	3.3	2.5	3.1
	NZ\$/tray	9.75	8.73	8.94	9.16	9.07	9.78
Zespri™ Gold	Trays (m)	7.3	15.6	22.5	25.2	24.6	11.1
	NZ\$/tray	10.38	9.50	10.40	13.12	14.42	16.44
Kiwi Green	Trays (m)	1.9	1.5	1.0	1.6	1.0	1.1
	NZ\$/tray	5.51	5.01	4.31	4.20	3.97	4.73
Kiwi Green Organic	Trays (m)	0.1	0.1	0.1	0.0	0.0	0.0
	NZ\$/tray	6.74	6.14	5.45	4.37	4.58	6.19
Kiwi Gold	Trays (m)	0.7	0.2	0.2	0.6	0.8	0.3
	NZ\$/tray	4.19	4.99	5.54	6.73	7.33	9.45
Non-standard	Trays (m)	1.4	1.0	0.5	1.2	0.9	1.1
	NZ\$/tray	4.45	4.60	5.27	7.59	7.64	8.12
Green 14	Trays (m)	n.a.	n.a.	n.a.	0.0	0.4	0.4
	NZ\$/tray	n.a.	n.a.	n.a.	n.a.	10.11	13.26
Sungold ²	Trays (m)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	NZ\$/tray	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total All Pools	Trays (m)	64.5	82.4	100.0	104.6	101.3	86.1
	NZ\$/tray	8.91	8.04	7.69	8.87	9.32	9.26

¹ Total fruit and service payments, including loyalty payments.

² Includes Gold3 and Gold9 cultivars.

The table above shows the number of trays of the different cultivars marketed by New Zealand, and the average grower payments per tray. The table also includes data for fruit sold under the Kiwi brand, that covers fruit not meeting the standards for the Zespri™ brand, for nonstandard packs, and for the newer, Green 14, cultivar. The volume of sales of all varieties, and of the three Zespri™ brands increased between 2001-03 and 2010-12, but was lower in the most recent two seasons, 2012-13 and 2013-14. The most dramatic volume decline (of 55 percent) was for Zespri™ Gold. The volume of Kiwi-branded and non-standard items was small, and changed little over time. The volume of Zespri™ Green organic was lower in both 2012-13 and 2013-14 than during the 2010-12 period. Payments for Zespri-branded products followed a similar path to the orchard gate returns shown previously. The payments for Kiwi-branded and nonstandard products were considerably lower than those for Zespri-branded products. The relationships between the different brands and the different cultivars is likely to have changed irreparably as the result of the PSA damage. New relationships will be created as the volume of the newer golden cultivars expands and as they are tested by the market in future seasons.

Wholesale Market Prices in 2014

Wholesale markets continue to have a significant influence on trade in fresh kiwifruit despite the growing influence of direct sales between large suppliers and large retailers. Large retailers continue to use wholesale markets to supplement supplies, while many small retailers, wholesalers and food service outlets still rely on wholesale markets where they can get alternative price quotes and sample incoming product before placing their orders. Wholesale markets offer an excellent early warning system of unusual supply situations in any district, product, variety or pack type. Thus, they provide a useful barometer of changing market conditions.

Monthly data for the year 2014 are presented on the three following pages for important wholesale markets in North America (New York, Montreal and Toronto) and Western Europe (Rotterdam and Paris). All five markets handle fresh kiwifruit on a year-round basis from all the major supplying countries and districts. The prices quoted here are the "mostly" prices at mid-month, by origin, pack type and fruit size, for items that are of normal quality. The most popular pack types vary by market, and tend to change over time as preferences in individual markets change.

In general, prices for both Northern and Southern Hemisphere suppliers in 2014 were above those for 2013, confirming the trends shown by import prices that were discussed earlier in this chapter. Prices in European markets did tend to weaken as the 2014-15 season got under way in the Northern Hemisphere. The overlap between quotes for Northern Hemisphere and Southern Hemisphere kiwifruit was quite similar to that of 2013. It was much more extensive in Toronto and Montreal than in any other of the markets studied.

Kiwifruit from Italy and Chile were well represented in all the markets studied. Product from California was available in North American markets, although not as heavily as in previous years. In contrast, kiwifruit from France and Greece were prominently represented in the European markets. Greek kiwifruit was not represented in the Montreal market in 2014 after being featured prominently there in 2013. While price quotes for yellow-fleshed kiwifruit were more frequent than in 2013, the number of quotes was still limited.

As in previous years, there was a pecking order among countries in the general levels of prices. New Zealand kiwifruit of the same variety, size and pack type consistently earned a price premium over competing products. Chilean fruit tended to receive higher prices than Italian fruit when the two suppliers overlapped. Prices for Greek kiwifruit tended to be lowest among European suppliers.

New York: Wholesale Prices of Fresh Kiwifruit, 2014 (mid-month prices, US\$, selected packs)

Origin & Pack	Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 layer packs													
Italy	27	10.00	10.00	11.50	11.50	11.50							11.00
	30												
	33												
	36	9.00	9.00										
<i>Yellow flesh</i>	27												10.00
Chile	27						11.50	11.50	11.50	11.00	11.50	10.75	
	33												
	36						11.00	11.00	11.00	11.00	11.00	11.00	
<i>Yellow flesh</i>	25								10.00				
9kg Cont Loose													
California	25										28.00	28.00	
	27										28.00	28.00	
	30										28.00	28.00	
	33										27.00	27.00	
	36										28.00	24.00	
	39											24.00	
Italy	23				25.00								
	25	21.00	22.00	26.00	25.00								24.00
	27	21.00	22.00	26.00	25.00	23.00							24.00
	30	21.00	21.00	25.00	25.00	23.00					32.00	32.00	24.00
	33	20.50	20.50	25.00	25.00	21.00	24.00				32.00	32.00	23.00
	36	19.00	19.00	25.00	25.00	20.00	24.00						
	39	18.00	18.00	22.50	25.00	20.00							22.00
Chile	23					25.00	26.00				32.00	32.00	
	25					25.00	25.50	27.50	27.50	31.00	32.00	32.00	
	27					25.00	25.50	27.50	27.50	28.00	32.00	32.00	
	30					25.00	25.50	28.40	28.50	28.00			
	33					23.00	23.00	28.00	27.00		27.00	27.00	
	36					23.00	23.00	29.00	28.00	28.00	24.00	24.00	
	39					25.00	21.50	29.00	27.00	27.00	24.00	24.00	
New Zealand Hayward	27							34.00	34.00				
	30							34.00	34.00				
	33									34.00			
	36								36.00	32.00			
	39									32.00			
New Zealand <i>Yellow flesh</i>	25								15.50				
	30							25.00					

As usual, prices tended to be higher for larger fruit, although occasionally, the very largest fruit sizes were slightly discounted. This was particularly true in markets where a large volume of many different sizes was available. Where supplies were not as plentiful, price quotes were frequently the same for sizes that were close together, such as 25s and 27s, or 39s and 42s.

Rotterdam: Wholesale Prices of Fresh Kiwifruit, 2014 (mid-month prices, US\$, selected packs)

Origin & Pack	Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3 kg containers													
Greece	23	5.79	5.81										
	25	5.45	5.47									5.32	5.22
	27	5.11	5.13									5.32	4.91
	30	4.77	4.79	5.89								4.76	4.06
	33	4.77	4.45									4.82	4.21
	36												3.38
10 kg Cont Loose													
France	27	18.39	18.47										
	30												
	33	15.66	15.73										
	36	14.30											
	39	12.94											
Greece	23	17.03	16.99								18.41	14.09	13.21
	25	13.62									17.78	13.47	11.98
	27	15.66	15.63		19.34						17.78	13.16	11.98
	30		14.95	16.99	18.99						17.14	12.53	11.52
	33	14.30	14.27	16.64	18.65						16.51	12.21	11.06
	36	13.62			18.30						16.51	11.59	10.45
	39											10.81	11.37
	42	12.26	13.59									10.33	
Italy	25	17.71	17.78		21.59						20.95	16.76	12.75
	27	17.03	17.95		21.24	24.77				22.69	20.80	17.22	14.13
	30	16.34	17.10		21.24	22.02				22.37	19.85	16.91	13.52
	33	15.66	16.25	17.69	22.28	21.33				21.88	19.05	16.29	13.52
	36	14.30	15.56	17.34	20.90	22.70				20.75	18.10	15.50	13.21
	39	13.62	15.32	17.34	20.38					19.29	17.78	14.88	12.90
	42	12.94	14.27	16.30	19.69					18.64	16.83	14.09	13.51
Chile	23						26.07	26.85	32.41				
	25					29.48	25.73	27.19	31.74				
	27					29.48	25.39	26.51					
	30					27.77	24.04	25.15					
	33					27.08	23.53	21.75	30.07	28.52			
	36					28.11	23.36	21.07	22.05	27.23			
	39					28.11	22.68						
	42						20.65	19.03					
5.6 kg containers													
Chile													
<i>Yellow flesh</i>	39						25.05	23.11					

As noted for 2012 and 2013, the range of pack types reported on wholesale markets in 2014 was heavily dominated by traditional pack types. This may be because higher prices and reduced overall supplies had lessened the need to experiment with newer pack types. Such experimentation is likely to resume once global supplies of kiwifruit get back on an upward trend.

Toronto/Montreal: Wholesale Prices of Fresh Kiwifruit, 2014 (mid-month prices, US\$, selected packs)

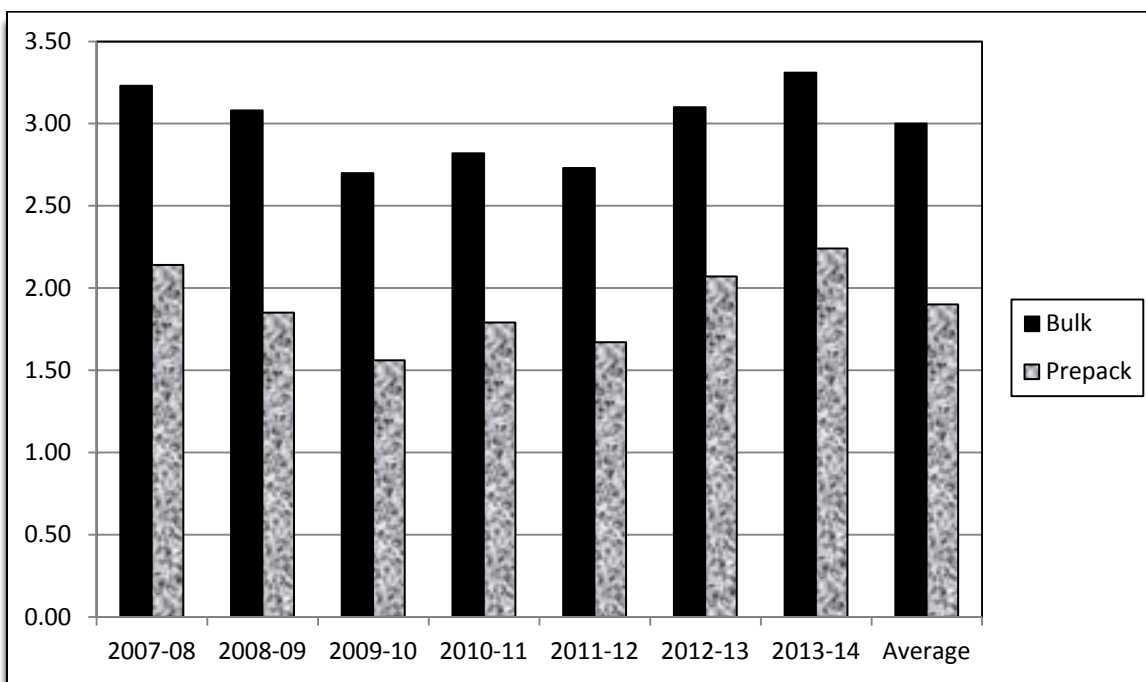
Origin & Pack	Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Toronto, 9 kg													
California	25												37.34
Italy	23					29.37	30.85						
	25			24.83	25.80				31.82	31.35			
Chile	27	23.60	22.51									36.18	
	33						32.23		29.51	29.95	22.92	31.60	32.44
Toronto, 10 kg													
Italy	25		26.56										
	27	23.12											
Montreal, 9kg													
Italy	25	25.68	24.76	26.34	24.89	25.56	26.71	26.61	26.59	27.08			
	27	25.68	24.76	26.34	24.89	25.56	26.71	26.61	26.59	27.08			
New Zealand	27								31.41	33.59	30.35		
Montreal, 20-lb													
Chile	25							32.83	28.67	21.94	28.58		

Paris: Wholesale Prices of Fresh Kiwifruit, 2014 (mid-month prices per kilogram, US\$, selected packs)

Origin & Pack	Size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 kg cont loose													
France	27	2.64	2.67	2.71	2.69	2.75							
	30	2.10	2.19	2.23	2.35	2.48						2.61	2.49
	33											2.34	2.05
Greece	27											1.56	1.49
	30	1.56	1.64	1.74	1.73								
Italy	30	1.49	1.64										
New Zealand	36	2.84					3.26	3.27	3.21	3.11		3.98	
Chile	30							3.00	3.07				
	33							3.00	3.07				
5.6 kg containers													
New Zealand	30						4.21	4.22	4.14	4.01			
	33						4.21	4.22	4.14	4.01			

Fruit of different quality tend to be sold in different pack types at different price points in order to appeal to different types of consumers. The chart below shows the average retail price in France of fresh kiwifruit sold loose versus those sold in prepacked punnets (barquettes) for the seven most recent seasons. The price per 10 pieces loose is compared with the price per kilogram in a barquette. Bulk kiwifruit is category 1, 90-gram minimum weight, while prepacks are usually category 2, 65-70 grams, in one kilogram punnets.

France: Retail Price Comparisons, Bulk versus Packaged, 2007-08 to 2013-14 (euros per kilogram)



While the prices of both bulk and prepacked fruit have moved up and down from season to season, those movements have tended to be consistent in direction. For example, the recent low point for both bulk and prepack was in 2009-10 and the recent high point for both was in 2013-14. In contrast to past findings, the ratio of prepack to bulk prices was lowest in 2009-10, the year of lowest prices. However, that ratio was above 60 percent in every other year, and averaged 63.4 percent for the entire seven seasons. Thus, the combination of different fruit sizes and different packs provides consumers with the price signals needed to choose the form of kiwifruit that they prefer.

5. Analyzing Demand for Fresh Kiwifruit

Changing Environment for Fresh Kiwifruit Demand

Fresh kiwifruit are sold in so many different markets around the world that it is difficult to assess the most important forces affecting demand. Demand here means the volume that will be bought or consumed at a specific price. It combines the factors of quantity and price discussed separately in the previous chapters. While there are some influences that are unique to demand in specific markets, there are also a few common influences that affect almost all markets.

The biggest single worldwide influence on demand for most food products is the general state of the economy. When consumers' incomes and wealth are rising, they tend to be more willing to try new products, or to spend more on existing products. In contrast, when incomes and wealth are losing ground, consumers tend to become less adventurous about new products, and more thrifty in their purchases of existing products.

Prior to 2008, the world economy had enjoyed a long run of prosperity. The developed world, including North America, Western Europe, Australasia and Japan, had experienced solid, if unspectacular growth. Consumers were able to supplement their incomes with plentiful, and cheap, credit that allowed them to indulge themselves in better homes and automobiles, more basic necessities and luxury goods, and new services, travel and entertainment. In many cases, consumers were borrowing from the future to indulge themselves in the present, something which could only continue if credit continued to be readily available.

Middle income countries like the BRICs countries, Brazil, Russia, India and China, had grown even faster, as they benefited from liberalization of their economies and the opportunities offered in international trade. China became the world's factory, producing an increasingly sophisticated array of products for the developed world. Russia and Brazil benefited from increased demand for their resource exports, like petroleum and foodstuffs. With the collapse of central planning, many countries in Eastern Europe and Central Asia moved to free up their markets and build their links with the world economy. Second-tier developing countries in Asia, Africa and Latin America, were buoyed by growth among their larger neighbors. Modern retailing expanded very rapidly in many countries in order to service the myriad needs of more affluent, and better financed, consumers.

Retailers that had catered to the mass of thrifty consumers, began to adjust their inventories to cater to the newly affluent and indulgent. Even Walmart, Inc., the leader in supplying mass goods at everyday low prices, sought to move upscale as its clientele moved upscale.

That phase of growth in the world economy came to an abrupt halt in 2008 with the collapse of the housing market, the bursting of the debt bubble in the United States, Spain, Ireland, Iceland and other countries, and the global financial crises that ensued as many personal and business loans turned sour. Normally, in such recessionary conditions, economies tend to quickly self-correct. After a period of increased unemployment and business bankruptcies, the majority of surviving firms are able to rebuild rapidly as wages fall and competition is reduced.

However, it soon became clear that the recession that began in 2008 was no ordinary recession. It was quickly dubbed the "Great Recession", and recognized as the greatest global economic setback since the Great Depression of the 1930s. Governments around the world believed that quick action was needed to avert a real depression. As a result, it was estimated that in 2009 and 2010 there were about 300 stimulus programs under way worldwide. In addition, central banks believed that part of the problem was a lack of liquidity in the system, so they began to drive down interest rates and print very large amounts of money.

There is still much debate about how effective these measures were, or if an actual depression would have occurred without them. Results have been mixed at best. Stimulus programs had the most rapid payoff in countries like China, where there were few constraints on quickly implementing stimulus programs, such as investing in infrastructure like roads and high-speed rail. However, in the United States and Europe, where projects have to pass many environmental and bureaucratic hurdles, little of the stimulus money went to productivity increasing infrastructure. Most was used to prevent layoffs of government employees or to extend unemployment benefits for longer terms than normal.

The effectiveness of central bank actions, driving down interest rates and printing more money, were neutralized by unexpected events. Because consumers were still reluctant to spend, a slowing in the velocity (rate of turnover) of money offset much of the effects of the increased supply of money. Tighter regulations made banks less willing to lend to small and medium-sized businesses. Businesses, in turn, were less willing to borrow under more onerous conditions. As a result, job expansion was not as rapid as was hoped, and wage growth was slow.

Low interest rates helped the recovery in sales of homes and automobiles, but drove the wealthier citizens towards investments in riskier assets, such as stocks and derivatives. While higher income consumers benefited from asset inflation, middle and low-income consumers continued to suffer from wage stagnation. Many analysts noted a developing bifurcation in the marketplace, where high income consumers recovered rapidly from the recession, and resumed their normal buying habits, but middle and lower income consumers saw their wages stagnate and their real incomes (after adjusting for inflation) fall below pre-recession levels. Far from resuming their normal buying patterns, many poorer consumers have continued to curtail their total spending, and have focused more of their food purchases on discounted items, store brands, smaller sizes or lower grades, and less on premium items like organic or Fair Trade products.

While the recovery in the United States had numerous false starts, and eventually settled into a pattern of slow average growth, that in the euro zone was set back severely when the Greek debt crisis hit in 2010. Essentially, Greece had incurred so much debt that it could no longer pay interest on its debt while making the scheduled repayments. Faced with a number of bad choices, such as leaving the euro zone, or walking away from its debts, the Greece government decided to accept a bailout from the so-called "troika" of the International Monetary Fund, the European Union and the European Central Bank. In return, the troika demanded a number of austerity measures, including cuts in Greek government expenditures, the layoff of many public servants, cuts in pensions and other liabilities, and the sale of many public assets. The troika believed that such actions were necessary to prevent contagion from Greece affecting other troubled European economies, such as Italy, Portugal and Spain. While contagion has so far been averted, the situation in Greece has worsened since 2010.

Greece's gross domestic product shrank by a further 25 percent between 2010 and 2014, making it even more difficult for the country to pay off its debts. Successive Greek governments had been either unwilling or unable to comply with the terms of the bailout. By the end of 2014, it became apparent that Greece's debt situation had worsened, and that there was a need for a further bailout. Before that could happen, in January 2015, Greek voters elected a new government that had promised to break Greece free from dependence on the troika and its restrictive bailout terms. Despite the new government's show of bravado, its partners in the euro zone have been in no mood to indulge Greece for its perceived profligacy. Thus, Greece faces a number of additional years of imposed austerity.

The Greek debt crisis, and concerns about contagion across the euro zone, may have contributed to loss of confidence in many other European economies. In the event, most major European economies, including even Germany, have either flirted with, or fallen into recession at some time since 2010. More ominously, the euro zone appeared to be heading for a period of deflation similar to what Japan had endured off and on for almost two decades. It was feared that a period of deflation (falling prices) would lead consumers to postpone purchases, and businesses to postpone investments, leading to a downward economic spiral.

In response, the European Central Bank (ECB), in March 2015, began a series of bond purchases to attempt to inject liquidity into the European economy, even though the benefits of such "quantitative easing" in the United States and elsewhere had been questionable. What is certain is that the ECB measures have driven interest rates near to zero, and dramatically weakened the value of the euro. While the efficacy of the ECB's bond buying program remains in doubt, the economies of the euro zone countries should get a boost from expanded exports due to the weaker euro. In addition, the unexpected fall in the world prices of oil, natural gas, and many other commodities since mid-2014 should help consumers and businesses by reducing their costs.

In the meantime, Japan and the BRICs countries are facing their own new sets of economic challenges. In 2012, the Japanese electorate voted in the government of Prime Minister Shinzo Abe on his promise to end two decades of economic stagnation and deflation with his "three arrows" program, pressuring the Bank of Japan into monetary easing, increasing government expenditure through increased borrowing, and reforms that would remove structural impediments to growth, such as excessive bureaucracy, protectionist farm policies, and other anticompetitive laws and regulations. The first two arrows were the easiest to implement. With the help of a falling Japanese yen, the plan to stimulate growth and end deflation appeared to be working until Mr Abe rashly imposed an increase in the national consumption tax in April 2014, after which the Japanese economy again plunged into recession. He wisely delayed a further planned increase in the tax, called a snap election, and was returned to power in December 2014. Since then, the Japanese economy has had a modest rebound. However, progress on Mr Abe's third arrow, reform of the Japanese system, has been slow. Mr Abe's team has been negotiating for Japan's participation in the proposed TransPacific Partnership (TPP) in hope that opponents of reform will be won over by the potential benefits that Japan could gain from being a member of such a large, multinational free trade agreement.

Growth in the Chinese economy has also stalled. More recent stimulus measures by national and provincial governments have been less effective than those in 2009-10. Weak global demand has slowed the growth of Chinese exports and lessened the need for Chinese imports. The growth of those imports during the previous decade had played a major role in driving up worldwide demand for a wide array of commodities, and for stimulating economic growth in many countries that supplied those commodities. The Chinese government has been experimenting with allowing the value of the Chinese yuan to fall modestly to stimulate exports, but it is still too early to tell how seriously it will pursue such a policy. In any case, the fate of many economies going forward will be affected by the relative prosperity of the Chinese economy.

Two other major BRICs economies, Brazil and Russia, have been affected by the slowdown in commodity demand. Brazil has been hurt primarily by the fall in prices of agricultural commodities. The Russian economy has been seriously damaged by the dramatic fall in the price of oil, natural gas, minerals and metals. The value of the Russian ruble was cut in half, greatly reducing the purchasing power of Russian importers. Russia has also been affected by self-imposed wounds. Its annexation of the Crimean peninsula of the Ukraine, and its assistance to an armed rebellion in Eastern Ukraine, led to sanctions from the western powers. Russia then retaliated by banning imports of fruits, vegetables, seafoods and other perishables from the European Union, the United States, Australia, Canada and Norway. Since Russia had become the world's largest importer of many food items, the Russian ban upset the supply-demand balance for many food products throughout the world, but especially in Europe.

The world economy now faces a number of potential "currency traps" as currency values change. Between 2008 and 2012, when the U.S. dollar was weak and interest rates were low, many countries borrowed in dollars to finance domestic projects. With U.S. interest rates now slated to rise, and the U.S. dollar substantially stronger, borrowing countries will find it much more difficult to either service or repay these loans. In addition, major trading entities like the EU, Japan, China, Brazil and Russia have gained advantages in exporting by either deliberately or accidentally allowing their currency values to decline. There is now a real danger that countries will start to engage in further competitive devaluations in order to gain a temporary edge in export markets. A downward spiral of competitive devaluations could at best damage normal trade relations, and at worst precipitate a trade war. Either of these outcomes could threaten five decades of progress in global trade liberalization.

The changing fortunes of many economies and of their consumers have also had major impacts on the food distribution system, which has, in turn, affected food demand. Prior to 2008, large multinational retailers were expanding rapidly in many countries with many different formats. Huge hypermarkets and supercenters catered to consumers who wanted a wide selection of both food and non-food products under one roof. The produce sections expanded in step because produce tended to generate relatively high margins. Food retailers also became more demanding of their suppliers, requiring them to show certification of "socially responsible" behavior in terms of food safety, agricultural practices, labor conditions, energy use, lower carbon footprints, etc. In order to become preferred suppliers to the major retailers, produce packers, marketers and wholesalers rushed to consolidate into larger units that could better meet retailer demands. Retailers also placed increased emphasis on buying supplies closer to the source. This led to major restructuring of the large international distribution companies, such as Dole and Chiquita, that had once been so prominent in the global produce trade.

However, after the Great Recession hit, the large multinational retailers were less nimble in adjusting to the changing needs of consumers than many of their smaller rivals. The biggest beneficiaries of the (suddenly) more cautious and more thrifty consumers were the limited assortment discount stores like Aldi and Lidl. The name reflected the limited selection of the most popular items that they stocked in sparsely fitted stores with few added services. They were able to offer high quality items at very competitive prices. While their market share in many countries remained low (less than 10 percent), it was growing so rapidly that the mainstream supermarket and hypermarket chains were forced to restructure their operations to protect their market share.

Almost all the major multinational food retailers withdrew from their weakest markets in order to concentrate their resources on fighting the new challengers in their more lucrative markets. Most have announced plans to curtail investment in very large stores, and to place more emphasis on smaller "neighborhood" stores or on "convenience" stores. Many of these newer formats will have much less total floor space, and much less shelf space for produce items. Suppliers will have to be more flexible in meeting the product and logistical needs of smaller format stores. This also means that the battle for shelf space between the different kinds of suppliers will become even more intense. However, the revamped food retailing organizations will not ease their demands on suppliers to continue to behave in a "socially responsible" way. In response, further rounds of consolidation among suppliers are already under way.

In this situation, the role of the individual producer will continue to shrink. In order to get his or her product to market, the individual producer will either have to integrate vertically into packing and marketing, or become affiliated with a large, integrated grower-packer-marketer, or national marketing organization that can supply major retailers on a year-round basis. Thus, demand at the grower level will be filtered through an increasingly complex distribution system.

World Demand for Fresh Kiwifruit

In previous issues of the World Kiwifruit Review, the import demand for fresh kiwifruit was analyzed both for the OECD countries (most of the richest economies) and for the total world. In both cases, most of the changes in demand could be explained by just two variables, the deflated import price and changes in per capita GDP. In general, increases in import prices had a small negative effect on per capita imports, while increases in per capita GDP had a strong positive influence. This would suggest that demand for imported fresh kiwifruit has been growing. There was some evidence from the raw data that import demand has been slowed temporarily by the Great Recession. Unfortunately, data in this series were not available after 2011, so it was not possible to measure any lingering effects of the global recession or of the disruptions caused by PSA since 2011.

One area of the world where imports of fresh kiwifruit have been increasing is in Asia. A separate analysis by Belrose, Inc., was reported in our sister publication, "Asian Import Demand for Apples, Pears, Sweet Cherries and Kiwifruit, Potential to 2020," published January 2013. Historical data were available through 2011 for nine different Asian countries, Indonesia, Malaysia, Singapore and Thailand in Southeast Asia, and China, Hong Kong, Japan, South Korea and Taiwan in Northeast Asia. There was insufficient data available for countries in South Asia with large populations, such as India, Bangladesh and Sri Lanka, because imports of fresh kiwifruit were very low and erratic. Equations using historical price and per capita income data explained more than 80 percent of the variation in fresh kiwifruit imports for Thailand, China, Hong Kong, South Korea and Taiwan, and over 60 percent for Indonesia and Japan. The price effects were generally inelastic, meaning that a ten percent increase in price caused a less than ten percent reduction in per capita imports. In comparison, rising per capita incomes had a positive effect on per capita imports. That effect was strongest in Indonesia, Thailand, South Korea and China. It was weaker in the countries with a long history of importing fresh kiwifruit, such as Japan, Hong Kong and Taiwan, but even there, a 10 percent increase in per capita income was associated with at least a

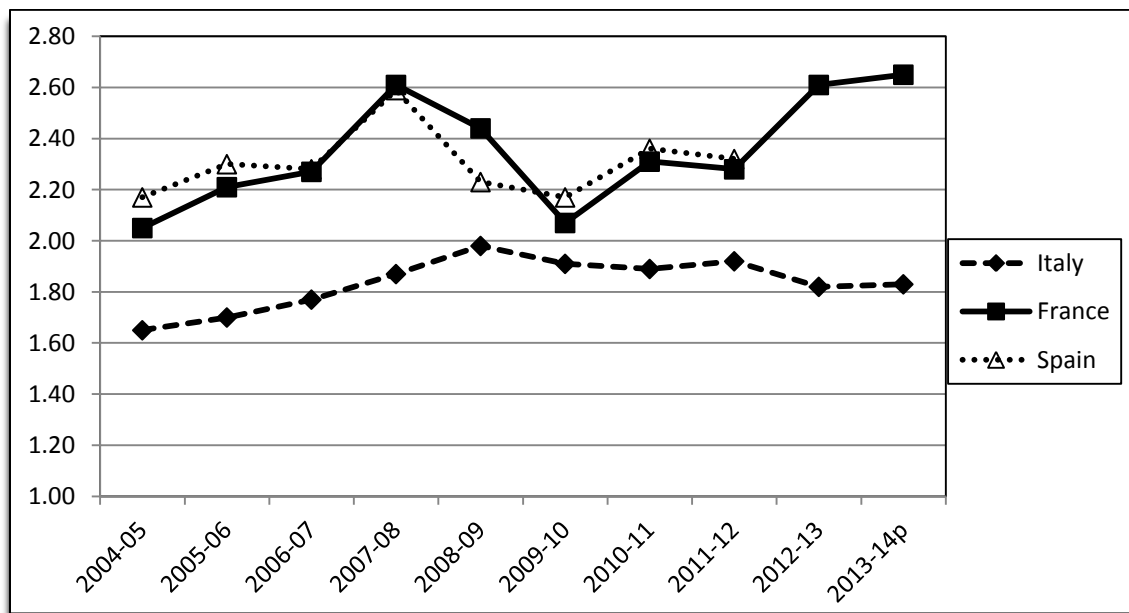
10 percent increase in per capita imports. This suggests that there is reason for optimism about potential increases in demand for fresh kiwifruit in Asia, as long as per capita income continues to increase.

Unfortunately, similar analyses have not been undertaken for many other developing countries. Reasonable information on demand trends is available only for countries in Western Europe and the United States.

Retail Demand in Western Europe

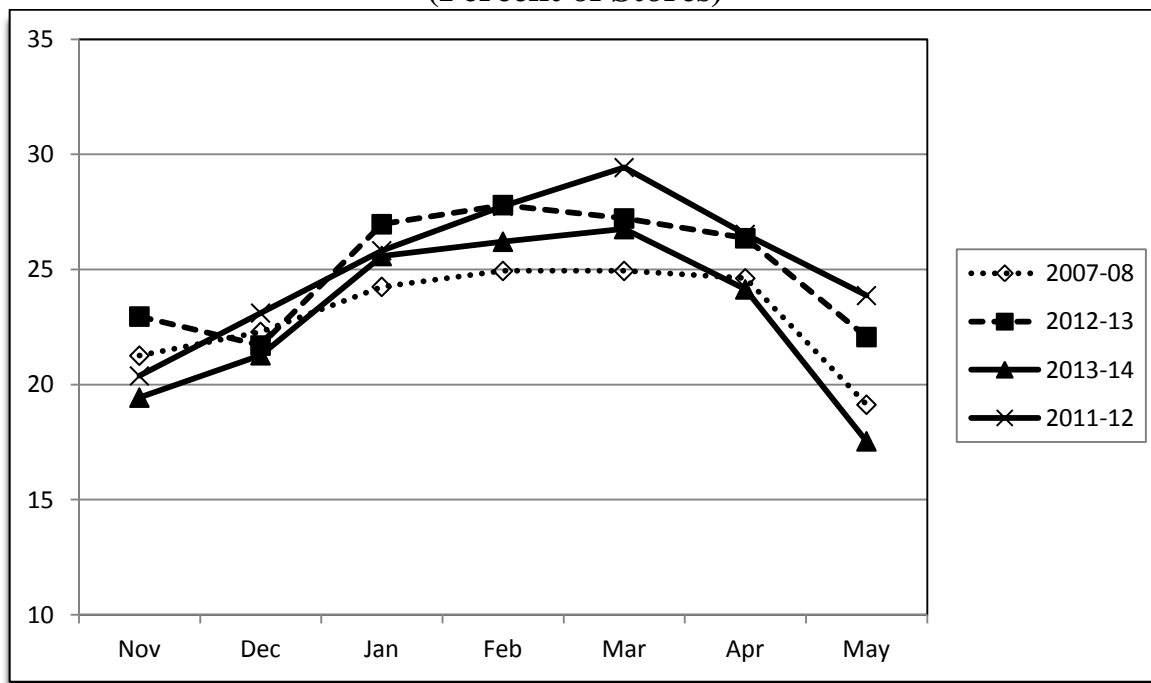
Information on demand for fresh kiwifruit among major retailers has been available in Europe for several countries, including France, Italy, Germany, Spain and the United Kingdom. However, in recent years, data could only be accessed for France and Italy, and to a limited extent, Spain. The chart below shows average retail prices for those three countries from retail panels in Italy (IHA), France (Kantar) and Spain (Fepex). In general, retail prices for France and Spain moved closely together, above those in Italy. This is understandable, since France and Spain are net importers, and Italy is a net exporter.

Italy, France and Spain: Average Prices, Respective Retail Panels, 2004-05 to 2013-14
(euros per kilogram)



Accordingly, in the rest of this section, the analyses focus on results for France and Italy. The chart below shows the average monthly retail penetration of fresh kiwifruit in France for the 2007-08 season (before the Great Recession) and for the three most recent seasons, 2011-12, 2012-13 and 2013-14. In general, retail penetration was slightly higher in the most recent years, although penetration did slip back in the 2013-14 season. However, neither of these shifts can be tied clearly to the effect of the recession.

**France: Fresh Kiwifruit, Monthly Retail Penetration,
2007-08, 2011-12, 2012-13 and 2013-14
(Percent of Stores)**



The table below summarizes the average per capita consumption (in grams) and the average deflated retail price, derived from the retail panels in France and Italy for each quarter and annually for 2004-07, 2008-11 and 2012-14. The goal was to identify potential shifts in demand. The first period preceded the recession, the second period coincided roughly with the recession, while the final seasons included the erratic period of recovery from recession. For France, per capita retail sales were higher in every quarter, and for the year, between 2004-07 and 2008-11. They made further small gains on an annual basis in 2012-14, but there were slight dips in both the first and fourth quarters. France had the opposite experience with retail prices. Annual average prices were modestly lower in both 2008-11 and 2012-14, but virtually unchanged in any individual quarter.

France and Italy: Comparisons of Retail Sales per Capita and Deflated Retail Prices for Fresh Kiwifruit, 2004-07, 2008-11 and 2012-14

Country	Period	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
France	2004-07	Grams pc	313.8	248.6	136.1	220.1	229.6
		€ per kg	1.88	2.00	2.48	2.27	2.10
	2008-11	Grams pc	439.9	314.2	171.3	302.9	307.0
		€ per kg	1.78	2.01	2.29	2.06	1.98
	2012-14	Grams pc	428.5	315.9	178.9	301.0	319.3
		€ per kg	1.78	1.99	2.31	2.10	1.96
Italy	2004-07	Grams pc	571.5	611.7	351.4	387.4	480.1
		€ per kg	1.43	1.43	1.56	1.53	1.48
	2008-11	Grams pc	480.2	506.3	403.3	425.8	458.3
		€ per kg	1.68	1.75	1.53	1.46	1.63
	2012-14	Grams pc	596.9	607.9	363.2	404.3	515.0
		€ per kg	1.12	1.28	1.48	1.39	1.27

Overall, per capita retail sales were substantially higher, and average retail prices substantially lower, in Italy than in France in all three periods and in every quarter. The advantage was particularly pronounced in the second and third quarters, the quarters most removed from harvest. Indeed, in all three periods, per capita retail sales were highest for Italy in the second quarter. Average annual deflated prices for Italy rose between 2004-07 and 2008-11, but fell sharply between 2008-11 and 2012-14. The decline was most notable in the first and second quarters when per capita retail sales rose the most. Contrary to expectations, retail prices were highest during the depth of the recession, the 2008-11 period.

Quantitative estimates of retail demand for fresh kiwifruit for France and Italy were derived from both annual data series covering the 1990-2013 period, and from quarterly data series from Quarter 1, 1994 to Quarter 2, 2014. There were 24 annual observations and 82 quarterly observations, sufficient to obtain statistically significant results. The volume of retail sales and GDP were measured on a per capita basis, while both prices and GDP measures were adjusted for inflation for each country. The estimated coefficients and related t-values (below in parentheses) are presented below. The equations explained between 65 and 74 percent of the variation in per capita retail sales. Most variables were significant at the 5 percent level (* t-value), or the 10 percent level (^x t-value).

Annual Equations, 1990-2013

France: Retail sales per capita = 0.408 - 0.028 Deflated retail price
(1.018) (1.848)^x
+ 0.00764 GDP per capita $R^2 = 0.649$
(3.976)*

Italy: Retail sales per capita = -1037.21 - 1413.74 Deflated retail price
(1.222) (4.755)*
+ 1198.656 GDP per capita $R^2 = 0.743$
(5.936)*

In the case of France, a 10 percent increase in annual average price of fresh kiwifruit was associated with about a 7 percent decrease in per capita retail sales. In Italy, a 10 percent increase in annual average retail price was associated with a much larger (12 percent) decrease in per capita retail sales. On the other hand, a 10 percent increase in per capita GDP in France was associated with a 10 percent increase in per capita retail sales, while in Italy it was associated with a much larger (24 percent) increase in per capita retail sales.

Analyses of quarterly data for France and Italy permitted examination of seasonal factors affecting fresh kiwifruit demand. As before, prices and GDP were adjusted for inflation. The R^2 (goodness of fit) measures for the quarterly series analyses were higher for France, and lower for Italy. In the case of France, per capita retail sales shifted upward during the two winter quarters, and also shifted upward during the recession. In the case of Italy, the recession also had a positive effect, but the effect was not statistically significant.

Quarterly Equations, Q1, 1994 to Q2, 2014

France: Retail sales per capita = 164.528 - 195.863 Deflated retail price
(2.013)* (12.371)*
+ 82.414 GDP per capita + 37.914 D Winter + 24.878 D Recession $R^2 = 0.822$
(6.121)* (3.734)* (24.878)*

Italy: Retail sales per capita = 62.713 - 446.865 Deflated retail price
(0.278) (8.447)*
+ 258.741 GDP per capita + 8.807 D Recession $R^2 = 0.578$
(4.748)* (0.340)

In general, the results were quite similar to those presented in previous editions of the World Kiwifruit Review, indicating that more recent data did not alter the previously established relationships. The coefficients were significant at the 5 percent level for all four variables in the quarterly France equation, and for two of the three variables in the quarterly Italy equation.

The responsiveness of per capita retail sales to prices and incomes were estimated from the equations. In France, a 10 percent change in deflated retail price of fresh kiwifruit was associated with a 17 percent change in the opposite direction in per capita retail sales. In Italy, the same change in deflated retail price was associated with almost the same (16 percent) change in the opposite direction in per capita retail sales. In both cases, lower retail prices would increase gross revenue to the retailer. A 10 percent increase in per capita GDP was associated with a 17 percent increase in per capita retail sales of fresh kiwifruit in France, and a 24 percent increase in Italy. Thus, sluggish economic growth in both countries in recent years is likely to have inhibited kiwifruit retail sales. On the other hand, a resumption of economic growth would be beneficial to retail demand for fresh kiwifruit.

Demand in the United States

Retail data comparable to that for France and Italy is not publicly available for the United States. In the past, we relied on analyses at the grower level to assess some of the key influences on kiwifruit demand in the United States. Data series developed by the USDA's Economic Research Service provided information on supplies available from domestic and import sources, on grower prices of all kiwifruit, and on per capita consumption of fresh kiwifruit. After an absence of two years, that data series was restored through the 2013-14 season in January 2015. The data series covering the years from 1988-89 to 2013-14 were used to estimate the following inverse demand equation for a period of 24 annual observations. An inverse demand equation assumes that grower prices were dependent on the quantity variables specified. In the first equation shown here, the quantity variable was consumption per capita. The results were as follows:

$$\begin{aligned}
 \text{United States: Deflated Farm Price} &= 1129.520 - 1857.05 \text{ Consumption per capita} \\
 &\quad (4.584)^* \quad (5.003)^* \\
 &+ 0.0173 \text{ Deflated income per capita} \quad R^2 = 0.534 \\
 &\quad 2.019)^*
 \end{aligned}$$

All three coefficients in the above equation were significant at the 5 percent level. On average, a 10 percent change in per capita consumption was associated with a 13.3 percent change in deflated farm price in the opposite direction. Thus, an increase in per capita consumption would tend to be associated with a decline in real grower revenue. A 10 percent increase in income would be associated with a 6 percent increase in farm price, and a comparable increase in real grower revenue.

An alternative specification attempted to separate the effects on deflated farm price of the two main components of supply, domestic shipments and net imports. The results are shown below:

$$\begin{aligned} \text{United States: Deflated Farm Price} &= 1460.116 - 9.665 \text{ Domestic Shipments} \\ &\quad (8.096)^* \quad (4.674)^* \\ &\quad -3.066 \text{ Net Imports} \quad R^2 = 0.490 \\ &\quad (2.726)^* \end{aligned}$$

Again, all the coefficients were significant at the 5 percent level, but the equation only explained about half of the variation in deflated farm price. A 10 percent change in domestic shipments was associated with an 8.5 percent change in deflated farm price in the opposite direction. In contrast, a 10 percent change in net imports (imports minus exports) was associated with only a 3.5 percent change in the opposite direction in deflated farm price. That is, each ton of domestic shipments placed on the market reduced deflated farm price by twice as much as each ton of net imports. The good news is that increased domestic shipments can now increase without reducing total grower revenues.

Influence of New Cultivars on Fresh Kiwifruit Demand

The influence of new cultivars on fresh kiwifruit demand was distorted in the past by the exceptional success of the Hort 16A cultivar. It was able to gradually build a substantial premium over the Hayward green cultivar, without unduly cannibalizing the sales of that cultivar, or unduly reducing Hayward prices. However, that cultivar is set to rapidly disappear from the marketplace. In the case of New Zealand, the intent is to replace the yellow-fleshed Hort 16A, marketed as Zespri™ Gold with the yellow G3, to be marketed as Sungold™. To fill the large gap left by Hort 16A, the plan is to expand production of Sungold as rapidly as possible. This will be in contrast to the gradual, careful manner in which production of Hort 16A was increased.

Normally, in any period, the greater the supply placed on the market, the more price will have to be reduced to clear the market. In the case of a new variety, market capacity can be gradually increased as new customers try the product, like it, and seek to add it to their normal shopping list. As long as enough new customers are being added, the price decline for a newer product can be postponed. However, there is no way to know in advance for how long a period, and to what extent, market capacity for Sungold can be expanded. It has to be considered in the nature of a high risk experiment in market development.

Many other new kiwifruit cultivars have been tried, and many more are on the verge of being commercialized in global markets. Their potential impact on demand for fresh kiwifruit is still uncertain.

Overall, demand for fresh kiwifruit appears to be holding its own in the developed world, and to have considerable potential for growth in developing countries as the number of middle class consumers increases. How rapidly that growth will take place will be heavily dependent on continuing strong income growth in the developing world.

6. Marketing Initiatives

Emerging Obstacles to Trade

Because of the kiwifruit industry's heavy dependence on trade, the environment for world trade has a major influence on the marketing success of the industry in any year. Much of the industry's marketing successes over the last three decades have been due to the gradual easing of trade barriers in the developed world under two significant developments. The first was the ongoing efforts of the General Agreement on Tariffs and Trade (GATT) and its successor organization, the World Trade Organization (WTO) in gradually adding member countries and in reducing barriers to trade among those members. The second was the enlargement of the European Union from its original six member countries, France, Germany, Italy, Belgium, the Netherlands and Luxembourg, to its present 28 members that now includes almost all of the functioning economies of Europe. One key underlying principle of the European Union has been the removal of all barriers to trade in goods between member countries. Another barrier fell with the adoption of a common currency, the euro, by most of the EU member countries. The euro facilitated the payment system for trade among member countries. It eventually became strong enough to play a role in many trade transactions with third countries

These past successes in removing trade barriers are now taken for granted under the assumption that they are permanently enshrined. However, they are under strain from many negative forces. Many of the past gains in liberalizing trade are in real danger of being reversed. The WTO came into being in January 1995 with a clear agenda for further trade liberalization, especially in agricultural products. However, in the subsequent twenty years, it has added many new members, including China and Russia, but has presided over a succession of failed negotiating rounds. Even in its role as monitor of existing multilateral trade agreements negotiated under its auspices, and as an arbitrator in trade disputes between its member countries, its processes have frequently been either slow or ineffective. It has struggled to deal with new trade barriers erected by member countries based on concerns about phytosanitary protection or human health and safety. Under WTO rules, such barriers should be based on sound science and adequate risk analysis. In fact, they are often based on power politics. When a large importing country, like China, the EU or the U. S., imposes a new barrier, the exporting country is reluctant to object lest it jeopardize its broader exports to that major country. The major countries have also used such tactics against each other.

After the onset of the Great Recession in 2008, and the subsequent global financial crisis, a flood of new barriers to trade were erected by WTO member countries under various pretexts, but primarily aimed at protecting domestic industries. While the affected exporting product or industry suffered considerable damage, the individual barriers were usually limited in their scope. However, in aggregate, they caused widespread harm, increased the level of risks faced by both exporters and importers, and weakened the commitment to trade liberalization. When WTO rules are broken regularly, support for the institution itself is in danger of collapsing.

The free trade process itself can only succeed under peaceful conditions where cargoes can move safely and securely without risk. Much of the trade liberalization under GATT and the WTO flourished in regions where the U.S. military guaranteed the peace. Subsequently, that effort was supported by the European Union and Japan. However, in the last two decades, countries like China, Russia, Brazil and India have been less willing to accept the U.S.-EU-Japan consensus. They have different visions of the future world that they seek, and of their role in that world. Until recently, these differences were expressed in international forums like the WTO or the UN Council on Climate Change. However, more ominously, Russia has sought to pursue its vision using its rebuilt military. In response to Russian aggression in the Ukraine, many European countries and their allies in the North Atlantic Treaty Organization (NATO) are now examining military counter measures they might take to block further Russian moves. These developments threaten the umbrella of peace that had allowed normal trade and investment activities to proceed across most of Eurasia since the fall of communism.

Even more ominously, under new president Xi Jinping, China has asserted its control over an expanded fly zone around its territory and has been more aggressively pursuing territorial claims in the nearby oceans. It has been involved in disputes with Japan, Vietnam, the Philippines and other neighbors that have resulted in interruptions to trade and investment flows. Again, in response, these neighbors are looking at strengthening their military capabilities. In the case of Japan, that would require reversal of a 70 year old pacifist stance. These developments have the potential to disrupt the peace in Asia and the free flow of trade and development.

Such developments also present a moral dilemma for third country exporters. For example, Russia banned imports of perishable products from the countries that placed sanctions on it for its meddling in the Ukraine. These were the European Union, Australia, Canada, Norway and the United States. The dilemma for countries like Argentina, China, Chile and New Zealand, whose products were not

banned, is whether continuing normal trade relations with Russia might be considered tacit approval of the Russian aggression. In this case, since Russia has denied direct involvement, that stance might be considered reasonable. However, if Russian troops openly invaded a neighboring country, would that stance continue to be defensible? Would continuing to trade be seen as supporting the actions of the Russian government, and dampen trade relationships with countries that have suffered Russian bans? Such a situation is a real possibility, but hopefully third countries will not have to deal with that dilemma in the near future.

Another area in which the breakdown of peace has put normal trade at risk is in the Middle East and North and Central Africa. Large parts of Iraq and Syria are currently embroiled in conflicts between incumbent governments and contenders, and between different religious and ethnics factions within those countries. There are conflicting views about the proper form of government within Middle Eastern countries, whether monarchies, military dictatorships, western democracies or supranational governments such as the caliphate being proposed by the Islamic State (ISIS) organization. There are also numerous organizations willing to use force to achieve the government they desire and no strong peace movement to offset the warlike rhetoric.

A final potential disruptor of global trade is a currency war. There is a risk that many major countries are slipping into competitive devaluations of their currencies in order to gain an advantage for their exports and boost economic recovery. If, for example, by devaluing the euro against the Japanese yen or the Chinese yuan, euro member countries gain an advantage for their exports, the Japanese and Chinese authorities may be tempted to devalue their currencies as a protective measure. That process appears to be already under way. Such tit-for-tat policies can easily lead to a downward spiral of devaluations. In addition, because most smaller countries compete against these giants in export markets, they too may feel obliged to allow the value of their currencies to slip as a defensive measure. However, for smaller countries that tend to borrow in major currencies like the euro, Japanese yen or U.S. dollar, devaluation of their currencies can make it harder to repay their debts. Many Asian economies, including South Korea, Thailand, Malaysia and the Philippines were caught in exactly that sort of situation in the late 1990s, and suffered severe economic setbacks as a result.

As shown in chapter 3, major exporters of fresh kiwifruit, such as Chile and New Zealand had seen their returns whipsawed by wide fluctuations in their exchange rates against the U.S. dollar and the euro. Unstable exchange rates cause special problems for perennial crops like kiwifruit where long-term planning is so critical.

Removing Obstacles to Trade

Faced with the inadequacies of the WTO multilateral trade liberalization process, many exporting countries have sought to negotiate more limited bilateral or regional trade deals with their major trading partners. Among kiwifruit exporters, Chile has been the most aggressive in completing such deals around the world. More recently, New Zealand has been active in inking bilateral trade deals. Because of the importance of agriculture in Chile and New Zealand, agricultural interests feature prominently in such negotiations. In contrast, countries like France and Italy are represented by the European Commission in trade negotiations. The interests of a relatively small sector like kiwifruit are outweighed by the many other large sectors of the European economy. The United States government has been slow to promote bilateral free trade agreements because of the political opposition it has faced, particularly from the trade unions.

Over time, bilateral trade deals lead to a situation where different suppliers of the same product face different levels of tariffs or quotas in the same country. The net effect may be distortion of natural trade flows. Another distortion arises in bilateral trade deals between a large and a small country. In order to obtain better access, the small country may be forced to accept terms imposed by the larger country that are unrelated to the traded products. For example, the EU has been demanding that trade partners enforce EU laws on products that carry EU protected geographic indicator status against products from third countries. Regional trade deals, such as those between China and ASEAN, the Association of Southeast Asian Nations, create similar distortions.

In the last two years, concerned that they may be disadvantaged by some of the larger regional trade deals, the European Union and the United States are in the process of negotiating the Transatlantic Trade and Investment Partnership (TTIP) that would, in theory, reduce barriers to trade between the two economic giants across the board. Until the details of the proposals become public, there is no way to assess how an individual commodity like fresh kiwifruit might be affected. The United States has also (belatedly) joined an effort to promote a Trans-Pacific Partnership (TPP) agreement with 11 other Pacific Rim countries that include Japan, but notably omit China. Once again, details of the proposals are not yet available. There is also considerable skepticism about whether or not the TTIP or the TPP can win approval from member governments. Many vested interests would have to be overcome if these treaties are to be ratified.

In the meantime, China seems set to challenge the leadership of the United States and Japan in international and investment forums. China has been pursuing trade agreements with traditional trade partners in East Asia, but has also been building ties with Pakistan and Sri Lanka in South Asia and with the "stan" countries, like Kazakhstan and Turkmenistan, in Central Asia. China is interested in improving road and rail links that would reach across those countries, tie into the modern transportation infrastructure of Western Europe, and eventually provide Chinese traders with efficient land links as far west as Paris or Madrid. China has also been trying to build a coalition of countries to set up the Asian Infrastructure Investment Bank (AIIB) that would compete with the World Bank and its associate organizations in funding infrastructure projects in Asia. While the United States opposes the concept, the United Kingdom has applied to join the AIIB, and many other Pacific trading nations (including Australia and New Zealand) are weighing the possibility of membership. The path of free trade and investment may become bumpier as these rival approaches jockey for influence.

Retail Challenges

Changes in the retail food distribution system are also likely to continue to present new challenges to marketers of fresh kiwifruit in their own country or in other developed country markets. Although the major multinational chains, like Walmart, Carrefour and Tesco, are under pressure from smaller rivals, they are likely to continue to demand from their suppliers the same assurances on high quality, competitive prices, logistical efficiency, and certifications of good social practices, that they have imposed in recent years. However, under pressure from stockholders, they will continue to try to improve their competitive position by introducing new initiatives which will require cooperation from suppliers. For example, Walmart alone, in the last year, has announced new initiatives on sustainable food production, greater stocking of organic foods, increased domestic purchases and the economic empowerment of women. Where necessary, they are willing to lean on suppliers to help make these initiatives a success.

At the same time, alternative retail formats, such as limited assortment discounters, like Aldi and Lidl, warehouse club stores, like Costco, upscale food chains, like Whole Foods and Waitrose, dollar stores, pharmacy/drug stores, and convenience stores are all attempting to win customers away from the mainstream supermarket grocery chains. Each of these different types of food outlets have different perspectives on the role of produce items, on whether or not they will stock an item like fresh kiwifruit, and on how many stock keeping units (SKUs) of kiwifruit they

will sell. Traditional supermarket chains, where most consumers do their main grocery shopping for the week, tend to handle both loose and clamshell packs. Club stores prefer large packs, often organic. Stores that cater to drop-in customers wanting to supplement their main shopping trip (so called "top up" purchases) usually require small, convenient packs. More and more chains are also seeking to individualize the types of packs they offer. This, in turn, requires suppliers to be proactive in offering their customers distinctive packs, often in conjunction with tailored promotions.

While the battle between retail bricks-and-mortar formats will continue to rage, multiple efforts are under way to sell produce on line. The current chief obstacle is how to deliver perishable items at a convenient time to recipients without suffering reductions in quality, or incurring losses due to weather, animals, theft or other hazards. Given the effort that all the major retail chains and the online giants, like Amazon and Google, are putting into solving this delivery problem, a solution could be very close.

Elusive Consumers

Perhaps the biggest challenge for marketers is that of gaining the attention of consumers long enough to influence their shopping and eating behavior. Until a decade ago, most food shopping was done by housewives that could be reached by a few mainstream media, such as daily newspapers, monthly magazines, or network television or radio. As the number and types of media outlets have proliferated, many daily newspapers and monthly magazines have disappeared. The television and radio audiences have become fractionated. The internet and the smart phone have become the preferred conduits to information and entertainment. Smart phone apps have connected consumers to each other and to new sources of information in constantly evolving ways. The number and types of social media have exploded. While email remains the favorite means of communication within businesses, consumers are increasingly using instant messaging, Facebook, Facetime, Twitter, Instagram, Pinterest, and other apps too numerous to mention, to communicate with each other.

Since younger people tend to be the earliest adopters of each new social medium, that group has become particularly elusive for marketers. A special challenge has been attempting to reach the young adult population born between about 1985 and 2005, popularly referred to as the "Millennials". Members of this cohort of the population are more likely to be single and living with their parents, to have

reduced job security, and to delay entry into marriage, family life, children and other characteristics of adulthood. They are purported to be more environmentally aware and to be more concerned about the origins of their food (although this claim remains difficult to verify or quantify). However, they will be a key element of the core working and shopping population in every country for the next three decades. The decisions they take about career choices, marriage, household formation, number and timing of children, where they live, where they work, and how they spend their leisure time, will have consequences for decades to come. So, firms that succeed in reaching out to the millennials will have a distinct marketing advantage in the years ahead.

Response of Key Players to Marketing Challenges

Like every other produce sector, the kiwifruit industry has been attempting to adapt to these changes in the trade, retailing and consumer environment to the best of its ability, while also dealing with the internal challenges of fighting PSA and diversifying its product mix. The level of consolidation at the packing and marketing levels in order to gain economies of scale has varied from country to country and district to district.

New Zealand Committed to Single Point of Entry

The kiwifruit industry in New Zealand has moved furthest along the path of consolidation. While most kiwifruit growers have relatively small holdings, packing operations have become dominated by a few, large organizations. The grower-owned Zespri organization has a monopoly of international marketing of New Zealand-grown kiwifruit (with a few small exemptions for niche markets). This system is referred to euphemistically as the "single point of entry" system. New Zealand kiwifruit that wishes to enter international markets must do so through the Zespri organization. Working together, the large packing organizations and Zespri give New Zealand exceptional ability to control the quality of kiwifruit that will be exported, and to which markets it will be exported. New Zealand kiwifruit have been consistently able to earn the price premiums needed to compensate for its location disadvantage far from many major markets. In theory, the system can control the allocation of different kinds of kiwifruit to different markets so as to optimize the total return to the New Zealand industry. In practice, some modifications of that allocation model may be necessary because of other trade considerations.

The single point of entry system for kiwifruit has created tension between Zespri and large, multiproduct New Zealand companies like Enza Limited, that believe they could better maximize their revenues and profits if they were permitted to market their own fruit internationally. Additional tensions arose during the height of the PSA crisis when injured parties were seeking where to place blame for the crisis. However, Zespri was able to provide a blueprint for rapid industry recovery from PSA. With the help of product innovations from Plant and Food Research and the financial support of the New Zealand government, it was able to execute the recovery plan. As a result, the majority of the New Zealand kiwifruit industry continues to strongly endorse the single point of entry model.

The Zespri structure does allow the New Zealand industry to gain economies of scale in shipping, marketing and promotion. It has the resources to keep track of the changing trade, retail and consumer environments, and to tailor its marketing and promotion to those changes. It can divert resources to newer markets like China, where there are better prospects for growth than in some of its traditional European markets. Its focus on premium products meshes well with the renewed interest of the more affluent consumers in such products. However, a key to executing that premium product strategy will be how well the new Sungold cultivar performs over the next few years.

Italy Many Options

The kiwifruit industry in Italy is both aided and hampered by having a large domestic market and being close to some of the world's largest markets for fresh kiwifruit. On the one hand, these large markets have helped sustain the past growth of the Italian industry, although that growth has been slowed by the combination of slower population growth and a period of economic stagnation across Western Europe. On the other hand, closeness to markets has meant that many small operators have been able to compete successfully in nearby market niches. Unfortunately, too often they have competed by trying to get early-season premiums for their product. When that product disappointed, it affected demand for kiwifruit for many months.

In the past, the Italian kiwifruit industry has mounted a number of initiatives to prevent release of immature kiwifruit on the market. These efforts have not solved the problem permanently. A new initiative has been promoted by Ortofrutta Italia beginning with the 2014-15 season. An interprofessional agreement specifies that Italian kiwifruit should not be harvested until it reaches 6.5° brix and a manual penetrometer reading of 6.5 kg/cm². The Hayward variety should not be sold in

commercial channels until it reaches 10° brix with a penetrometer reading of 2 to 3.5 kg/ cm². Fruit for export to Europe should meet the same standard, while fruit for export to Russia or overseas should have a minimum brix of 6.5° and a manual penetrometer reading of 3 to 5 kg/ cm². It is not clear how aggressively the proposed standard will be enforced, or how successful it will be in keeping immature fruit off the market, especially in years of large crops or low prices.

Another way in which the Italian kiwifruit industry has attempted to improve quality and gain clout in the marketplace is through mergers of private firms or consortia of cooperative operations. It appears that the effectiveness and stability of these different consortia vary substantially. Some have been affected more than others by the incidence of PSA. Some key producing districts are still trying to regain the ground lost to PSA.

The Italian kiwifruit industry has been able to draw on support from the Centro Servizi Ortofrutticoli (CSO) for research and information. Funds from the EU and Italian governments have also been made available through CSO for international promotional efforts. However, those funds have not been available on a continuous basis, and have been limited relative to the size of marketing challenges facing the Italian kiwifruit industry.

Chile Seeks Better Quality Control

Fresh kiwifruit from Chile are exported to world markets by a wide diversity of marketing companies, including large national and multinational businesses and small groups of producers. While the top ten exporters usually account for over half of all Chile's fresh kiwifruit exporters, over 100 different firms sell some kiwifruit in foreign markets. For some smaller firms, kiwifruit are a leading product, for others, they are of minor importance. This diversity of competencies has created problems in maintaining quality standards in export markets. The issue came to a head several years ago when peso returns to many Chilean growers were hit with the double whammy of a strong Chilean peso and discounted prices for Chilean kiwifruit due to quality concerns in selected markets.

In response, the Chilean kiwifruit industry, led by the growers association, Fedefruta, and the exporters association, ASOEX, set up the Chilean Kiwi Committee with three main goals, improving the quality of Chilean kiwifruit exported, improving the perceptions of Chilean kiwifruit in export markets, and ensuring better acceptance of Chilean kiwifruit with foreign consumers. The overall goal was that of improving the competitiveness of Chilean kiwifruit in

export markets. By late 2014, 80 percent of Chilean kiwifruit growers and exporters were members of the Chilean Kiwi Committee and were committed to following the Committee's quality protocols in the orchard, packing house and beyond. Members who met the Committee's quality protocols were entitled to use the Committee's logo on their export packs. The hope was that foreign buyers would come to associate that logo with assured quality.

The Committee's task was complicated by the emergence of PSA as a problem in Chilean kiwifruit orchards. As a result, much of the Committee's efforts had to be diverted to fighting the spread of PSA and developing protocols that could be used by orchards and packing houses for early detection and treatment of PSA. In addition, much of the Committee's educational efforts for quality improvement had to be devoted to providing improved methods of dealing with PSA.

However, export marketing and promotion efforts for Chilean kiwifruit have continued under the auspices of ASOEX which has established programs for a broad array of Chilean fruit in established markets like Europe and North America and has expanded its efforts in Asian markets. ASOEX employs traditional research and marketing tools in its work. The only weakness is that its efforts must be shared over many different fruit products.

Greece Enjoys Expansion Opportunities

The rapid increase in the total supplies of kiwifruit in Greece, and the expansion of market opportunities in neighboring countries and in Russia, have given the Greek kiwifruit industry the resources to improve the quality of its products and to expand its export marketing efforts. Until recently, Greece was willing to accept lower prices for its product than those demanded by Italy. However, that gap has been narrowing. Some of the more progressive Greek exporters have attempted to use branding and geographic indicators to earn premium prices for their products, but that remains a minority of the Greek crop.

Because of the Russian ban on imports from the EU, Greece was expected to have greater problems than usual in selling its kiwifruit crop in the 2014-15 season. However, thanks to improved quality, a tumbling euro, and competitive prices, Greece has been successful in selling most of its kiwifruit crop in a timely fashion. Greece is likely to continue to play a more important role in world trade in fresh kiwifruit in the years ahead.

France Awaits Economic Recovery

In France, marketing of fresh kiwifruit is dominated by a few large, regionally-based grower-owned cooperatives that have well-established brands and quality control programs. The French domestic market for fresh kiwifruit is the third largest in Europe after Italy and Spain, but competition from imported Italian kiwifruit is intense, and has caused some of the weaker operators to exit the industry. As a result, French marketers have focused on the premium market segment in France and in neighboring countries. However, sluggish economic growth and heavy emphasis of major retailers on discounting have limited the growth of the premium market. France has not been as aggressive as Italy and Greece in seeking additional markets outside Europe.

France has a well-established support structure for its major fruits. Most kiwifruit industry research, promotion and service activities within France are performed by an organization dedicated to kiwifruit, the Bureau Interprofessionel du Kiwi (BIK). A national promotional body, Interfel, conducts promotions in export markets in conjunction with the major exporters.

Whither China?

The big unknown in the marketing of fresh kiwifruit is what role China might play in the next few years. Until recently, the domestic Chinese market for fresh kiwifruit has grown so rapidly that it has been able to absorb all Chinese production and an increasing volume of (mostly off-season) imports. Tentative efforts to promote exports have fallen flat, largely because the quality of Chinese product has not been competitive with that of the major exporters.

However, the Chinese economy has begun to slow, and even government leaders are preparing citizens for a period of slower growth in the near future. The size of the market for products like fresh kiwifruit should continue to grow as more Chinese enter the middle classes. However, given the large productive potential of the Chinese kiwifruit industry, it is possible that supply of fresh kiwifruit could temporarily race ahead of demand and depress kiwifruit prices. That would create an incentive for the Chinese kiwifruit industry to place more emphasis on exports.

Because of the many alternative kiwifruit cultivars that are being developed by Chinese breeders, China has the potential to offer some unique kiwifruit products to the world market. However, introducing new products requires considerable

knowledge of modern retailing systems, and expertise in packaging and promotion, knowledge and expertise that are currently scarce in China. However, the Chinese fruit industry learned very rapidly how to compete effectively in the world market for fresh apples and fresh pears, and for apple juice concentrate and canned pears. Admittedly, China already had apple and pear varieties that were well accepted in export markets. The same is not true in kiwifruit. If Chinese firms were willing to partner with fruit marketing experts from other countries, and build the handling, storage and packing infrastructure needed to meet export quality standards, they could rapidly become significant players in the global kiwifruit market.

7. Strategic Issues

Reversing Productivity Declines

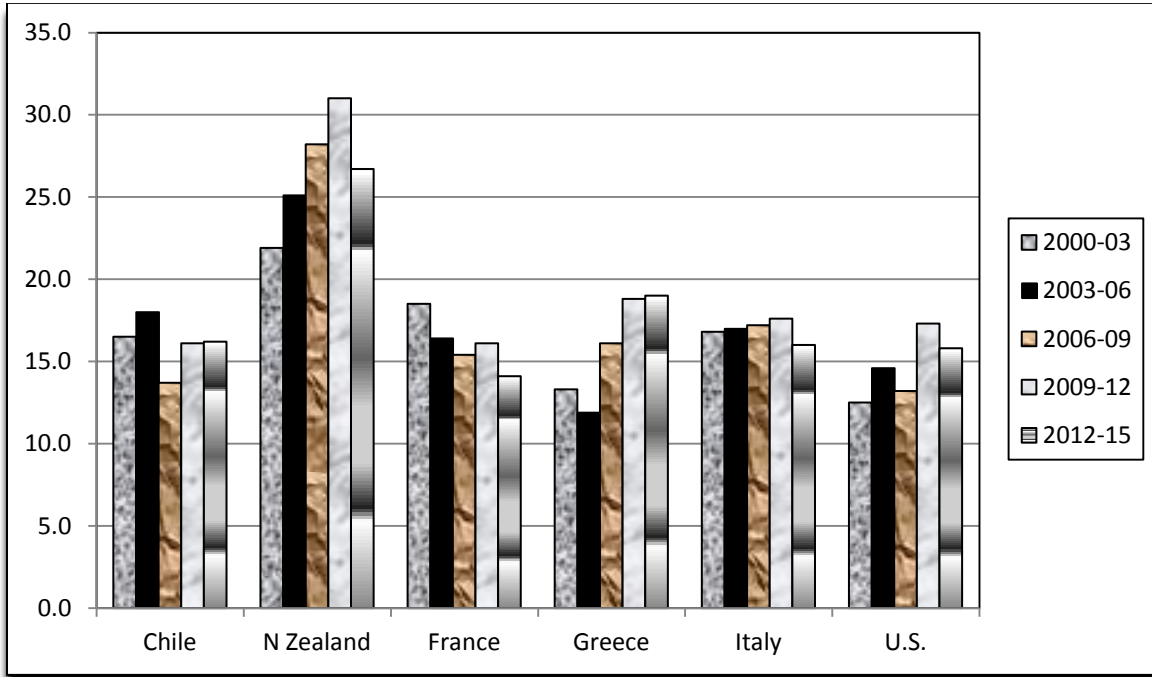
Like many other fruit industries, the kiwifruit industry worldwide has been facing rising costs for utilities, labor, raw materials and regulatory compliance, and downward pressure on real prices. In the case of packing and marketing operations, many businesses have been able to achieve economies of scale by getting bigger through internal growth, mergers or acquisitions. They have attempted to increase revenues by adding greater value to their products.

For most producers with isolated or scattered plantings, such financial solutions are not available. To some extent, rising costs can be offset by reduced use of various inputs. However, cost savings are often not an option. Specific activities or treatments may be required to protect the crop or to meet state regulations. The primary way in which producers can offset rising costs is by increasing productivity, that is, achieving increased average yields per hectare.

Producers constantly tinker with various activities in established orchards in order to coax additional yields from the same land area. However, such gains in productivity tend to be slow and incremental. In addition, the producer needs to be able to balance potential increases in tonnage against potential reductions in marketable quality. For example, a greater volume of smaller sizes may generate less revenue than a smaller volume of the more desirable sizes. New plantings offer the producer the opportunity to use different planting systems, rootstocks, trellising, weather protections, etc. to provide greater average yields as the planting matures. However, during the years until full maturity, a producer's overall average yield may fall.

The same sort of result can occur for an entire growing district or country. When area planted is expanding, average yields can tend to fall. In the recent situation, where many mature blocks had to be removed because of PSA, and replaced with new plantings, in areas with the most severe infestations, average yields are likely to be reduced for several years ahead. The chart on the next page shows the trends in average yields for six major kiwifruit producing countries for five three-year periods between the 2000-01 and 2014-15 growing seasons. The six countries were Chile, New Zealand, France, Greece, Italy and the United States.

Selected Countries: Average Yields per Hectare, Three-year Periods, 2000-2015 (metric tons per hectare)



The chart above shows that average yields for most countries ranged between 15 and 17 metric tons per hectare over the five three-year periods covering 15 seasons. The exception was New Zealand, where average yields were substantially above those of all other countries. However, the trends varied widely between individual countries. In the case of Chile, average yields were relatively flat, as the effect of new plantings offset the higher yields of mature plantings. In New Zealand, average yields rose steadily for the first four periods, powered by the expansion in area of the higher-yielding Hort 16A cultivar. In France, the trend was downward over the 15 year period. The opposite was the case in both Greece and the United States, where the long-term trend was upward. In Italy, gains were modest over the first 12 years, before falling backward in the 2012-15 period. The impact of PSA on average yields was most apparent for New Zealand and Italy, where PSA has been most damaging.

The New Zealand kiwifruit industry is expecting average yields to rebound with increased production of the high-yielding Sungold variety. However, the other major producing countries, with the exception of Greece, still need to find ways to improve orchard productivity to remain competitive with other fruits.

Adding Value for Whom?

The kiwifruit industry, like many of its competitors, is being urged to produce more added value products in order to increase industry revenues. However, radical changes in the profile of potential consumers is making it very difficult to decide at which consumers to target value-added products. The problem is due to sweeping socio-demographic changes that are fractionating shopping and consuming units, particularly in developed countries, but also, more gradually, in many developing countries.

Traditionally, core shopping and consuming units centered on the family. Sixty years ago, in the typical family unit, the husband earned income outside the home, while the wife was a full-time homemaker. The wife managed the shopping and meal preparation, and had a powerful influence on the diets of her husband and children. Thirty years on, many wives also earned incomes outside the home. However, they still managed shopping and meal preparation. Higher joint incomes allowed her to be more adventurous and indulgent in food purchases, and also to buy more prepared meals from the grocery store, and to eat out more often with the family. While the husband and children had gained greater influence on the family diet, the wife was still the critical player. Even after the children left the home, the wife remained in charge of the diet in "empty nester" households.

Fast forward to 2015, the number and influence of traditional households has greatly diminished. There are more one-person and two-person households as more single people delay marriage, more married couples delay having children, and more older people live longer with no children present. However, an even more radical departure has been the increase in single parent homes, couples cohabiting without marriage, same sex marriages, blended families of divorcees with children, children abandoned to the care of grandparents, etc. For example, in the United States, Centers for Disease Control (CDC) data for 2011-2013 indicate that for women aged 15 to 44 years who gave birth in the last five years, 25.9 percent were cohabiting when the child was born, while 18 percent were unmarried and not cohabiting when the child was born. For men aged 15 to 44 years whose first child was born in the last five years, 25.4 percent were still cohabiting with the mother, while 16 percent remained unmarried and not cohabiting. Cohabiting parents accounted for 59 percent of all births outside marriage, while 40 percent of the 3.93 million births in the United States in 2013 were to unmarried women. Surprisingly, the increase in births among cohabiting parents has been strongest among white and Hispanic women, and those with some college training.

Similar trends have been observed in many other developed countries. Populations continue to skew older. Marriage and birth rates are falling, the incidence of births to unmarried women is rising. At the same time, because of the recession, across Europe the percentage of young adults aged 18-34 living with their parents has risen in many countries.

While all these changes have wide social implications, their relevance here is for the new challenges they present for marketers. It is clearly no longer effective to target the housewife as the primary shopper and controller of the diet of a closely integrated household. Individualistic needs in food products (from childhood to old age) have become much more prominent. Even within stable relationships, the dynamics of decision making have become much more complex.

The mother figure in households is no longer the sole, or even the main, arbiter of food choice. Now consumers are continually bombarded with advice and guidance on food and beverage habits from official and unofficial sources. Official sources include a proliferation of government health authorities that now feel obliged both to offer advice, and to pass laws and regulations, to influence food and beverage consumption. They include medical practitioners, like doctors, dentists and nutritionists, that have professional expertise on food and nutrition matters. School administrators, and their associations, are also under pressure to provide appropriate food and beverage choices to the young people in their charge.

However, the official sources continue to be heavily outweighed in influence by the multitude of unofficial sources. Every commodity group, and every manufacturer of prepared or prepackaged foods, invests heavily in justifying greater consumption of its products. From birth, consumers are exposed to such messages in newspapers and magazines, on television and radio, on outdoor billboards and in-store signs, and increasingly, on the internet and on social media. Many self-anointed food gurus, celebrity chefs, food bloggers, etc., have gained large followings, often with advice that contradicts that of the official sources. Occupying a middle ground are the food activists, often lead by credentialed scientists. While their main expertise appears to be in raising funds to promote their views, they are also adept at using publicity stunts, lobbying, lawsuits and other tactics to change laws and regulations affecting food consumption.

The result of all these different influences, is that shoppers and consumers can no longer be easily classified into homogeneous market segments or even market slivers. Marketers need new paradigms for classifying the enormously heterogeneous customers with whom they must now deal.

Finding the Elusive Target Customer

Compounding the problem for marketers, discussed previously, about categorizing different types of consumers, is that of how to reach or influence them as the potential media avenues continue to change at a rapid rate. Even for traditional media, like radio and television, consumers now have access to hundreds of channels through cable and satellite services. A large block of consumers can no longer be reached simultaneously on critical programs, like the nightly news or top hit shows, on the major networks. That is why special sporting events, such as the Olympics, the World cup of Soccer, or the Super Bowl in American football, have become so important to advertisers. News is now available twenty-four hours per day on dedicated news channels or on the internet, and indirectly on consumers' smart phones. The influence of printed media, like daily newspapers and monthly magazines, has been seriously eroded. Many newspapers and magazines have gone out of business, while many major cities no longer have a single daily newspaper.

Although many older consumers remain loyal to the surviving newspapers, magazines and television networks, the younger generations have often abandoned them in favor of alternative media. The major trigger of change has been the internet, which is now continually available to most consumers at home, school or work. Initially, the internet was most heavily used for information searches and for email messaging. However, increasingly, as band-width capability has improved, the internet is used as a source of news, entertainment, shopping, and networking with like-minded people around the world. The internet has allowed massive new companies like Google, Amazon, Netflix and Facebook to flourish by allowing them to tap an audience of billions around the world.

The reach of the internet has been broadened immeasurably by the ubiquity of wireless communications, and by the advances in smart phone technology. The internet can be as easily accessed anywhere, anytime, from a mobile, wireless computer as from a wired computer. Wireless computers have become progressively smaller and more portable. The latest iteration, the smart phone, is essentially a wireless computer that can also make video telephone calls, send text messages, take photographs, and be put to many other uses. As this Review was going to print, the Apple corporation was in the process of introducing its next iteration, the smart watch. The use of the smart phone was dramatically extended by the development of millions of applications (apps) that would be acceptable to users in the limited screen space available. While some apps have had universal appeal, the utility of the apps has been increased by the fact that they can be constructed to meet countless specialized interests and needs.

Of perhaps greatest significance are the networks that the new wireless technology has permitted. Many now vie for the consumers' attention. In March 2015, the top 7 most popular social networking sites listed by eBiz were Facebook, Twitter, LinkedIn, Pinterest, Google Plus+, Tumblr and Instagram, each estimated to have at least 100 million unique monthly visitors worldwide. The list does not include the numerous shopping sites, dating sites and gaming sites that are particularly appealing to younger users. It does not include the many apps that are targeted to people with special interests. Another level of complexity has been added by the introduction of virtual games. For example, millions of players are now involved in fantasy football, fantasy basketball, or online gambling. It has become difficult to separate how much time consumers (especially young consumers) spend in the real world, and how much in the fantasy world.

Many marketers have wrestled with how best to use different sites in order to reach their target audience, that is, assuming that they can identify their target audience. So far, they have focused most on those networks, such as Facebook, that have the greatest intuitive appeal to mature adults like themselves. However, many of the newer networks and apps are outside the comprehension of most mature adults. Their target customers may be more deeply involved in a constantly changing array of social media. It is extremely difficult to separate short-term fads (that will disappear as fast as they came), from more robust fashions (that may last for one season) to innovations that might have more lasting value to consumers.

In many cases, large customers of produce suppliers, such as bricks and mortar and online retailers, restaurant chains and food manufacturers, that are experimenting with different social media, expect their suppliers to be equally engaged. This creates a problem for suppliers when different customers believe the future lies in different applications. Many large produce suppliers have used outside consultants, or attempted to hire in-house talent, to guide them through the social media maze. However, the field is so new that it is difficult to separate the real experts from the charlatans.

A new business of social media data analytics has emerged to help marketers measure the effectiveness of their use of the different social media, and the relevance to them of different apps. However, those tools remain unproven, and the target audiences continue to mutate like viruses. Businesses find themselves attempting to win a game where the rule book is ill defined. As with all innovations, the pioneers often take the greatest risks, but get the greatest rewards if they are correct. However, the followers can also win by keeping a close watch on how the pioneers fare.

Funding the New Marketing Game

The biggest challenge for relatively small produce suppliers, like those in the kiwifruit industry, is where to find the funds necessary to play in the new marketing game. The retail distribution system will be changing, consumer preferences will be changing and the means to influence retailers and consumers will be changing. All these changes will require additional investment in understanding how the kiwifruit industry might be affected, and what measures the industry, in turn, might take to prosper in the changed conditions.

One approach will be for each segment of the industry to view other kiwifruit producing districts and countries as their major competitors, and for each to adapt its current funding system to gain an edge over its kiwifruit rivals in meeting the new challenges. That could mean increasing the average marketing and promotion assessment presently charged to its producers. Within the industry, that charge can sometimes be concealed as marketing and promotion fees charged to other industry participants, such as packers, storage firms or marketers. However, since these firms offset their costs by charging them back to producers, producers ultimately pay in lower net returns.

While most producers readily accept the need to incur additional costs in the orchard in order to improve yield or quality or avoid losses, many have difficulty in accepting such logic in the marketplace. Numerous academic studies have demonstrated that an investment in marketing and promotion returns many times its cost. However, producers find it difficult to accept that logic in years when their operation incurs a loss. They are not reassured by the argument that without the promotional expenditure, their loss would have been even greater, and few recognize that the effects of promotions are cumulative. The residual effects of promotions carry over from one season to the next.

However, given the ubiquity of the challenges faced in the retail system, among consumers, and with the changing media environment, the kiwifruit industry in many different parts of the world faces very similar challenges. For example, in understanding changes in the large Spanish market, major kiwifruit suppliers, such as Italy, France, New Zealand and Chile, can each invest separately in market and consumer research to better understand the Spanish market. In addition to the fact that they will be duplicating effort and expenditures, they are assuming that other kiwifruit producers are their main competitors, rather than other fruits that are attempting to win away shelf space and consumers from kiwifruit.

Indeed, many other fruits are facing the same challenges in understanding the changing market environment and in developing strategies to benefit from those changes. It can be argued that the whole fruit category would be better to pool its resources in trying to understand the changes that are taking place. Such pooling would also be more likely to attract government funding, which has become increasingly scarce for individual commodities. A multi-product approach will be easier for countries like Chile, whose exporters association, ASOEX, already represents multiple commodities, or for multinational distribution companies that handle an array of fruits. However, it may still make sense for associations representing different commodities to pool their research and promotion funds to gain economies of scale in the effort.

Only the kiwifruit industry itself can decide whether its future strategy should be for each kiwifruit district or country to go it alone as in the past, or for different kiwifruit associations to work together through an organization like the International Kiwifruit Organization (IKO), or for the kiwifruit industry to combine its efforts with other similar fruit industries.

What we do know is that the challenges are not going to go away. If anything, they are likely to become even more complex as consumer behavior continues to fractionate, and as reaching different segments of consumers becomes more difficult. At a minimum, this conversation needs to take place.

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