

What Can We Learn from the New Zealand Apple Industry?

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The New Zealand apple industry has chosen to follow the strategy of focusing on the top end of the market by producing premium apple varieties. Continuing to do this requires an integrated approach among growers, researchers, and marketers. In New York, a situation where all fruit could be controlled by a single marketing body may not be a realistic option, but are there lessons the NY apple industry can learn from New Zealand?

Some personal caveats to this paper must be established right up front. Firstly, as a postharvest physiologist, not an agricultural economist or a marketer, the perceptions and opinions expressed here about the New Zealand industry are my own and some bias on my part is inevitable. Secondly, rapid change has become standard in New Zealand society, and right now a furious debate exists throughout the whole industry of the merits of the single desk selling system that will be described shortly. It is possible that some of the features described below that are unique to the New Zealand industry will soon be dismantled under the belief that marketing organizations such as ENZA (New Zealand Apple and Pear Marketing Board) are in conflict with free market dogma.

You may feel that the differences between our industries and those in New Zealand are too large to have relevance to you. However, there are some common critical issues as we confront the challenges of remaining competitive in an

creasingly difficult industry. If there is one overwhelming similarity between industries, it is that growers almost everywhere are struggling to stay in business in the face of declining returns for their crop, and are seeking solutions, sometimes with a chainsaw. The New Zealand grower has had an average return across varieties of \$11 per carton in recent years, although up to \$14.17 in 1997-1998. These returns are a long way from the heady (and probably unrealistic) heights of 1991 when the average was \$19.68. For comparison across industries it should be recognized that these values are grower gate return, i.e., exclusive of all cold storage, packaging, freight, sales, promotion and market overheads, research and development, finance charges, and other industry costs. Nevertheless, at current prices, the margin between production costs and returns has continued to decline, now being close to \$5.

Also, another similarity is that climatic events beyond our control regularly decimate crops irrespective of growing region. In 1998, for example, the New York industry lost 2.3 million bushels of apples during Labor Day weekend, and in 1996, the New Zealand apple crop dropped from 19 to 16 million bushels overnight, from hail storms. Moreover, fruit are not nuts and bolts—they are living organisms which vary yearly in keeping quality, and poor quality years are not easy for growers, shippers, packers, and marketers to deal with or sometimes, in the case of marketers, even understand.

Emphasis (in research) should be given less to producing more volume and more to developing better and more marketable products.

NEW ZEALAND'S SITUATION

New Zealand is situated in the South Pacific with a small population of 3.5 million people in a country that runs from the equivalent of the Canadian border to South Carolina (about 1,000 miles long, between the 34th and 48th parallels of the Southern Hemisphere). Its climate is subtropical to temperate producing exceptional crop yields, and the export of predominantly agricultural products such as wool, meat, and dairy products has been the country's life blood. From a marketing position, New Zealand is about as far away from large international markets as possible. Despite these distances, New Zealand was a happily complacent country until the 1970s, with one of the highest standards of living in the world, exporting 95 percent of its produce to the United Kingdom. Life changed dramatically when England joined the European Community, and at the same time the oil cri-

sis hit all world economies hard. Distance from the market became a serious issue because of dramatically increasing freight costs. The need to develop new markets and develop new products, especially with added value, became essential.

During the 1970s, a revolution in horticulture started in New Zealand as the success of the kiwifruit demonstrated that fruit exports could contribute increasing returns to the New Zealand economy. Tremendous investment occurred, and the 1980s saw continued growth of horticultural exports to overseas countries. From the mid-70s to 1991, apple exports from New Zealand increased from 7 to 20 million cartons, and from 1995 to 1997, apple exports have earned an average of \$570 million/year for the New Zealand economy.

This has occurred largely because of the success of Gala, Braeburn, Granny Smith, and Fuji. In 1985, Granny Smith and Delicious apples were 40 percent and 20 percent of the total crop volume. By 1997, these were minor varieties in comparison with Braeburn and Royal Gala (Table 1), and these proportions continue to change rapidly today. New Zealand produces a relatively small volume of the world's apple crop but has had an impact far beyond its size. The New Zealand industry, like all others around the world, is struggling in the present marketing environment.

TABLE 1

Variety breakdown of export apples from New Zealand in 1997 (Source: Orchardist of New Zealand, Feb. 1998).

Variety	Percentage of export
Braeburn	41
Royal Gala	25
Fuji	10
Cox's Orange Pippin	7
Delicious	6
Granny Smith	5

TABLE 2

Export sales of New Zealand apples in 1997 (Source: Orchardist of New Zealand, Feb. 1998).

	Tray cartons
European Continent	5,724,000
United Kingdom	3,900,000
North America	3,159,000
Asia	2,835,000

THE MARKETING ORGANIZATION AND MARKETING RESTRAINTS

Export apples are sold by a single desk operator, the New Zealand Apple and Pear Marketing Board known as ENZA International. Some parallel exporting from New Zealand takes place when niches not exploited by ENZA are identified by other organizations. At present there is a chance that the apple export business will be deregulated.

ENZA exports apples to 57 countries, with the largest volume going to the European continent, UK, and North America (Table 2). These markets, although most profitable, are also the most protected. ENZA spends considerable resources staying in, and improving access to, existing markets. In addition, oversupply of apples means that more markets are needed to spread volume, but many of these do not pay good prices. Nontariff barriers to export of apples exist, including protocols and phytosanitary barriers. These barriers make access very costly in some cases, e.g., Japan, Switzerland, and Mexico. No duty applies to fruit exported to the United States, but very stringent phytosanitary protocols involve USDA pre-shipment clearance. Subsidies for fruit production in Europe and subsidies for export promotion in the United States for competing markets also exist. Finally, nontariff barriers related to food safety, recyclable/refundable packaging, and integrated fruit production may have huge impacts on exports of fruit, particularly to Europe.

New Zealand is a relatively high cost producer, requiring a premium to cover market access issues and transport costs. Its recent success has been based largely on supply of unique varieties, but this exclusivity is rapidly being eroded by increases in production of Gala, Braeburn, and Fuji in South Africa, Chile, and the United States.

The marketing environment, particularly in Europe and the United States, is changing rapidly. The power of supermarket chains continues to increase, and each of these chains requires fruit to meet its specific standards. Inventory control and the future requirements for "just in time" delivery will impact many current storage and packing operations.

APPROACHES THAT MAINTAIN A VIABLE INDUSTRY

The following list, although not all inclusive, highlights steps that help main-

tain a viable apple industry in New Zealand.

A Single Marketing Organization or Consolidated Marketing

New Zealand has strength with its single desk marketing structure, which provides a strong coordinating body with the collective resources required to deal with customers and develop effective marketing campaigns. Product differentiation, distribution control, and branding can be maintained more easily.

ENZA sets the quality standards that must be met for export. In the past, when growers' fruit failed to meet these standards overseas, the losses were absorbed in the collective grower pool. Now, growers are directly penalized if quality is poor. ENZA provides market discipline, ensuring that exporters are not undercutting each other, as in the case with other Southern Hemisphere competitors.

ENZA has developed a strategic business framework upon which to maintain and build a sustainable future (New Zealand Apple and Pear Marketing Board Annual Report, 1997). Three phases have been identified. The first involves reducing costs, lifting quality standards and the product mix, developing year-round relationships with customers, investing in research and development, and ensuring assets are used and managed efficiently. Closer relationships with ZESPRI, the kiwifruit equivalent of ENZA, will be developed to obtain benefits from joint inventory control, shipping, technology, and overseas support offices. The second phase is focused on finding ways to use ENZA's skill base and intellectual property, such as plant materials owned by the Horticulture and Food Research Institute (HortResearch), to generate increased revenue. This has involved the formation of a joint venture company, Chiquita-ENZA Chile Limitada, (formerly ENZA's Chilean subsidiary, known as ZEUS, and the Chilean subsidiary of Chiquita Brand International), developing alliances and networks with Northern Hemisphere producers. A commercial and marketing presence in the Northern Hemisphere will be established as well to build 12-month marketing capabilities. Phase 3 will establish ENZA as a global horticultural business.

Product Differentiation

The New Zealand industry believes that its future lies in maintaining product

differentiation, both for existing and new varieties. This view is impacting heavily on growers. It can be argued that the immediate priority should be in maintaining value of existing varieties, because it is lower risk and does not require heavy capital expenditure at a time that the industry is strapped for cash (Wilton, 1997). However, it is clear from the planting in the last five years that growers are both improving existing varieties and planting new ones.

Existing Varieties

While existing varieties are losing their exclusivity, New Zealand fruit is still being sold at a premium. To maintain this premium, fruit quality requirements are increasing and product specifications are being matched with market demand. Color standards are increasing, e.g., Braeburn from 40 to 50 percent. Size range also provides opportunities for product differentiation, especially for varieties such as Gala for which competitors have difficulty growing large fruit. ENZA would like to have less dependence on Gala and Braeburn. However, these varieties are relatively easy to grow and manage, and improvement of production efficiencies is ongoing. Tighter quality standards are forcing growers to increase marketable yields by optimizing uniform tree size, full canopy, correct vigor, and cropping balance. The bottom line is that investment in orchard redevelopment must be a continuous process.

New Varieties

It is in this area that I believe New Zealand is leading the way internationally with new approaches, some of which are controversial. Introducing new varieties has traditionally been a long process. It took Braeburn 30 years to gain acceptance, and this timeframe is no longer seen as acceptable. The aim of the industry is to have several new varieties at various stages of testing at any one time, and the industry accepts that all will not be "winners." The varieties of most interest now are HortResearch-developed Pacific Rose and Southern Snap. These are from a series of selections (GS series) from a cross between Gala and Splendour. These varieties have gone from trial selection stage to export in 10 years. The first apples were exported in 1991, and about 100,000 tray-cartons were sold in 1996. Over a million trees of Pacific Rose currently are planted in New Zealand. This type of production, together with appropriate marketing, will maximize the chance of accep-

tion and associated international impact. Moreover, these trees are protected by plant variety rights and are not available to competitors. This new approach to product development is also illustrated by the fact that Pacific Rose and Southern Snap have been planted in Washington State and in France under license. The aim of planting in the Northern Hemisphere is to provide a 12-month supply of the varieties and increase revenue streams from 6 to 12 months. Most importantly, by controlling the variety, the volume, and the markets, ENZA will be able to control availability of the varieties.

Market Research

Closely linked, and indeed implicit, in the success or failure of product differentiation is market research to identify strengths and weaknesses of a product, market requirements and trends. Growing horticultural products is no different from any other business and should be market driven, not production driven. Two United States examples are salient here: Braeburn and new variety evaluations (Tippler, 1996).

The Braeburn Story

The Braeburn story shows, for example, that introduction of a new apple variety takes hard work and that the rapid penetration of this variety in 1995 was not accidental. First, despite the general belief that stone fruit and other summer fruit are the only fruit that sell well during the time that New Zealand enters the United States market, research indicated that apples are still a popular eating choice then. Extensive radio campaigns in key markets highlighted the fresh new season of apple availability. Marketing research indicated that the bi-coloration of Braeburn was seen as a negative by consumers because of perceptions of unripeness and that, in summer, apples are perceived as mealy, dry, and tasteless. ENZA made a conscious decision to demo the variety as much as possible to dispel the notion that a shiny red apple is not always a good eating apple. Considerable success was realized for this crisp, juicy apple with sweet-tart flavor. Repeat purchases were in excess of 75 percent, and in 1995 the variety was sold out 4 to 6 weeks earlier than planned.

New Varieties

ENZA has a new variety evaluation program in place in its major markets, including the United States. The aim is to

learn about the strengths and weaknesses of a variety in the marketplace by conducting consumer evaluations, sensory evaluation under controlled environments, obtaining technical evaluations, and sales and customer observations. For consumer evaluations, selected apple varieties are sent to regions for consumer testing of their attributes. Answers are collated for each geographical region and entered in the "New Variety Database" as part of the decision making for growers in deciding what varieties to plant. Sensory evaluation is more clinical and involves matching people types (ethnic, demographic features) with apple characteristics. This information pinpoints potential target markets or niches. Technical evaluations are incorporated to determine quality characteristics such as storage life and any observations relating to disorder incidence. Though not specific to the US, the apple variety Splendour used as a parent in the GS series described above had wonderful flavor and texture but too thin a skin for successful export marketing. Identification of this type of problem as early as possible saves further wasted investment. Finally, sales and customer observations, especially by supermarket buyers, are added to the information base used for decision making by ENZA and growers in New Zealand.

Research and Development (R&D)

New Zealand has always had a research community that is committed to the apple industry with pioneering work on many facets of horticulture, including the development of the center leader pruning system and control of calcium-related diseases. Until the 1990s, two government organizations were responsible for R&D. Commodity groups were involved in identifying research needs, but no financial inputs were required. Initial changes involved cutting government contributions to R&D by 30 percent over a 3-year period, and horticultural industries like all others were expected to pay for industry-directed research. The concept was that government, i.e., taxpayer, funding should be directed toward long-term goals. If the industry had a problem, then paying for research is no different than hiring an accountant or a lawyer. Both the kiwifruit and apple industries developed mechanisms for allocating R&D funds. By early this decade, it amounted to about two to three million dollars each. This change had many ben-