

The International Dwarf Fruit Tree Association Goes Down Under

Special *Fruit Grower* correspondents Jon Clements and Win Cowgill take you to New Zealand for IDFTA 2000 and show you the fruit-growing secrets of the Land Down Under.



By Jon Clements and
Win Cowgill

TRUE to its name, the International Dwarf Fruit Tree Association (IDFTA) held its 2000 Annual Conference in Napier, New Zealand (NZ), February 6-9, 2000. This was the first time the organization held its annual conference outside North America. Over 260 growers, researchers, Extension agents, and industry representatives traveled from the U.S. and Canada in anticipation of visiting a country that has built a reputation for high-quality fruit exports and is the home of Gala and Braeburn apples.

Here is a short travel diary of one IDFTA tour group:

Saturday, Feb. 5 —
The Adventure Really Begins

After two days of sightseeing it was finally time to see some orchards. It was an early morning departure for Napier and the Hawke Bay region, NZ's top tree fruit production area. On the way to Napier, we stopped in the city of Taupo, on the shore of Lake Taupo, the country's largest freshwater lake. From its south shore arises Mt. Ruapehu, an active volcanic peak with an elevation of 2797 meters. From Taupo we headed southeast by bus over forested pumice land and rugged mountain ranges. Scenic vistas — and a noticeable lack of roadside guard rails — made for a very interesting bus ride!

Finally, several orchards, and even more vineyards, came into view as we drove through the fertile Esk Valley just west of Napier.

First stop was Pattullo's Nursery Limited, a 45-year-old tree fruit and rootstock nursery owned and operated by Kerry Sixtus. NZ's largest root-



Jon Clements (left) and Win Cowgill (right), on assignment in New Zealand, evaluate various orchard training systems. Win Cowgill is professor and county agricultural agent at Rutgers Cooperative Extension of Hunterdon County Extension Center in Flemington, NJ. Jon Clements, currently the Michigan State University Berrien County Extension agent, will assume the post of Extension tree fruit specialist at the University of Massachusetts effective May 1. Cowgill and Clements are hosts of the popular Apple Crop listserv and Web masters of the Virtual Orchard, www.virtualorchard.net

stock nursery, Patullo's produces 750,000 rootstocks and 140,000 finished fruit trees annually.

Sixtus was an outspoken man with strong opinions on where the tree fruit and rootstock business was going in NZ. He indicated the fruit nursery was in "survival mode" as sales have dropped as an industry from 1.2 million trees to 500,000 to 600,000 trees annually.

When asked how he survives on these reduced sales, he said, "You become a better manager, you cut the fat out of the system. And we are concentrating on stone fruit trees as we get a premium for them currently."

He felt strongly that the entire fruit industry was in turmoil because of the uncertainty of the changes occurring in the marketing of NZ fruit. (We

were to learn that many growers and industry people felt this way.) He felt there was a big lack of grower confidence out there — as a result, growers were not investing in trees.

The nursery industry has consolidated he told us. "There were over 60 tree fruit nurseries and now we are down to 12, with only five producing 50,000 units or more." He was one of the five. Mr. Sixtus predicted, "only five nurseries will remain in the future of any significance and I will be one of them."

"It's an expensive, time-consuming process to bring new rootstocks into the islands of NZ," he said. "New rootstocks, as a result, will be in the hands of only a few nurseries." He indicated that his nursery was selling all its stone fruit trees but not its



This unique end-brace structure eliminates the need for an anchor outside the trellis system by using wired "push-pull" forces within the wooden support.

pipfruit (apples and pears) trees. Therefore they were putting their emphasis on stone fruit.

The key advantage of NZ nurseries was the very long growing season that lets them produce large caliper trees. If anything, they have to slow them down with foliar applications of copper and by withholding irrigation.

Speaking of irrigation, he emphasized they have unlimited water supplies from deep wells, which is a necessity considering they have three months during the growing season with no rainfall.

Royalties for HortResearch patented trees were \$1.50 to \$2.50 per tree. With the royalties for the scion and dwarfing rootstock, growers can count on paying \$10.50 per tree, NZ currency (currently valued at approximately 50% of the U.S. dollar).

For peach production Pattullo's Nursery utilizes cell-Pak raised and transplanted peach seed. They crack the stone and remove the kernels. They then sort the kernels for size and germinate them in cells after stratification. This removes the germination inhibitor on the kernels. This process gives them much more uniform germination in the liner bed. The sole peach rootstock is Golden Queen, a processing peach, grown from seed obtained from the cannery.

Second, we visited the orchard of J.W. (Jonathan) Moffett, a former rugby player and active with the Apple and Pear Marketing Board. With his two sons, they operate an orchard business partnership of 300 acres, with 260 acres planted to fruit. They concentrate 70% of sales on the local market. Production consists of 30% Pacific Rose apple, 18% Royal

Gala and Gala sports (Galaxy and Brookefield), 15% Granny Smith, 12% Braeburn and sports, 7% Fuji, 5% other cultivars, including Sunrise, Fiesta, Splendor, ordinary Gala, and Pacific Queen, and 1/2% of Red Delicious for a shrinking market.

Moffett said, "Pacific Rose is the new NZ cultivar that has captured the imagination of the NZ consumer and the export market to Singapore as well."

They market their fruit through a co-op; have utilized low volume spraying since 1983; and follow the IFP (integrated fruit production) program. They have greatly reduced their pesticide use: no organophosphates for three years and no miticides for the past nine years.

On certain blocks they use reflective mulches on Galas for extra color. They also make extensive use of wind-breaks using several native and imported species.

Sunday, Feb. 6 —
On To The Conference

The first day of the educational conference was held at the downtown Municipal Theatre. Sunday evening found us at the traditional opening session of an IDFTA conference where speakers gave an insightful overview of the industry:

- John Wilton, of AgFirst Consultants, told us why NZ was the ideal place for growing apples.

The Hawke Bay region on the North Island is the largest pipfruit growing region in NZ, accounting for over half of the country's total production. (It took us a day or so to figure out what our hosts were referring to when they said 'pipfruit,' a

Getting Acquainted With The Culture

WE ARRIVED at Auckland International Airport early on Thursday, Feb. 3, having departed Los Angeles on Tuesday. We lost a day of our lives (hopefully to be gained back on return!) by crossing the International Date Line during the 13-hour flight.

Traveling southeast from Auckland via bus, we traversed suburbs, farmland, and mountains on the three-hour drive to Rotorua, the North Island's biggest tourist destination. Before hitting the city though, we stopped at Rainbow Springs, where multiple ponds of large rainbow trout delighted us. Although native to North America, these salmonids have made NZ famous for some of the best trout fishing in the world.

**Friday, Feb. 4 —
Our Designated 'Tourist' Day**

First stop was the Agrodome, featuring a world famous live sheep show. This exhibition of sheep breeds, shearing, and sheep dogs was first a World Expo show before it was brought home to NZ. One sheep — representing each of eighteen different breeds bred for either wool or meat — obediently paraded on stage for display. A lucky ewe was then deftly sheared, a process that the experienced sheep shearer can accomplish in just a couple minutes!

Next stop was Whakarewarewa — a popular attraction featuring a working Maori (native Polynesian) village and Arts and Crafts Institute. Maori represent 9% of the total population and maintain a colorful, artistic, and historic culture in spite of their ties to the modern world. Also at Whaka, as the locals call it, is the bubbling mud and geothermal area featuring the island's largest geyser called Pohutu. Shooting 80 feet high, Pohutu provided a dramatic end to an interesting morning of activities, and also reminded us the North Island of NZ is essentially one big dormant volcano!

That evening, our day of tourism was topped off by a visit to a local Maori Marae — the traditional Maori meeting place. But first, we chose our own 'Chief' (a.k.a. IDFTA Secretary Charles Axe), who was greeted on arrival by the fearsome Maori wero (challenge) and powhiri (welcome). We were then treated to a concert of Maori songs and dances before feasting on an underground pit, steam-cooked, traditional hangi (dinner) of wild pork, lamb, seafood, vegetables, and kumara (sweet potato), a staple of the Maori diet. After a wonderful night of entertainment and cultural enlightenment we returned to Rotorua.

Compact Fruit Tree & The IDFTA Home Page



THE complete proceedings of the conference will be published in the *Compact Fruit Tree Journal*, the official publication of the IDFTA. Also, the complete text of the *Compact Fruit Tree Journal* articles will be published on the IDFTA Web site at <http://www.IDFTA.org>.



Pacific Rose
NZ is banking on this sweet crispy apple to maintain its reputation as the premier exporter of quality fruit.

Comparing Apples To Apples

Metric Units & U.S. Equivalents

- 1 Meter (m) = 39.37 inches
- 1 Kilometer (km) = 0.62 mile
- 1 Hectare (ha) = 2.47 acres

IDFTA 2000 Goes Down Under THE VIDEO



Royal Gala
Developed in NZ, the Gala apple is almost synonymous with the Kiwis. After Braeburn, Royal Gala is NZ's second largest pipfruit export.

SO YOU couldn't go to New Zealand with the International Dwarf Fruit Tree Association? No problem. New Zealand can come to you. Win Cowgill and Jon Clements are producing a 25-minute video highlighting the cultural attractions and tree fruit growing environment of NZ's North Island.

You will be able to visit orchards of the Hawke Bay region "first-hand" and gain colorful insight from their owners. Plus, selected excerpts from world-class speakers at the IDFTA conference will get you updated on the latest dwarf tree fruit production techniques and philosophies.

The "IDFTA 2000 Goes Down Under" video will be available mid-summer 2000 for \$29.95, shipping included. To pre-order your video, e-mail cowgill@aesop.rutgers.edu. Include your name, address, and number of copies. You can also request the video on the Virtual Orchard, www.virtualorchard.net

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term foreign to us Northern Hemisphere types!)

Wilton indicated fruit productivity in NZ was two to three times more, on a per acre/hectare basis, than other Southern Hemisphere countries such as Chile and South Africa and two times the productivity of many fruit growing regions in North America. He attributed this to:

- deep fertile soils;
- abundant underground water for irrigation;
- a mild climate with cool nights and bright sunny days;
- no winter injury; and
- an extended growing season after harvest (up to 80 days) until leaf fall.

He explained that this extended season was unique to NZ. It allows the trees to store carbohydrates for the next fruiting season.

• **Rex Graham** explained the workings of the NZ stone fruit industry. NZ recently adopted the name "summer" fruit to replace "stone" fruit, an obvious marketing effort, but also certainly more descriptive of the range of fruit harvested during summer, i.e. peaches, nectarines, plums, and cherries.

The stone fruit market was a very small, local one, which he felt could not sustain the industry alone. To survive they would have to continue to develop the stone fruit export market. He said, "we need to be at the forefront of new variety technology, new exciting varieties, and new marketing concepts. We need to grow our local markets as well as our export markets to Asia."

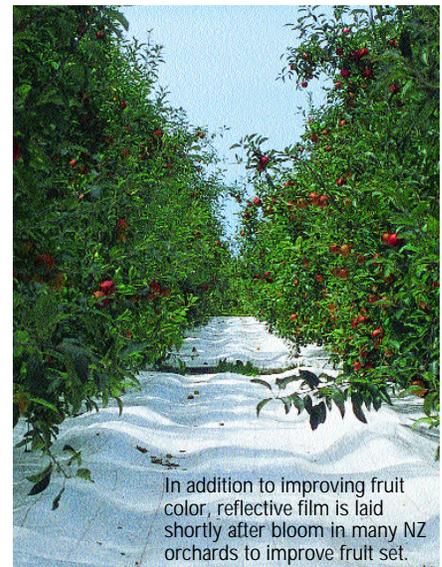
• **John Paynter** gave an introduction to the marketing and political (they are almost synonymous!) infrastructure of the industry. "There is no money in growing fruit, the money is in marketing fruit." He also gave us a review of the history of marketing organizations in NZ. We found no topic creates more discussion in NZ than how fruit is marketed. We spent most of the trip trying to comprehend the intricacies of this topic. The domestic market is small but over-supplied from the fruit that does not make it to the export market.

NZ produces 30 million tray cartons for international export by 1500 growers, mainly to the Northern Hemisphere. Recent changes to the export structure resulted in the formation of ENZA branded strategies in the early 1990s. NZ produces less than 1% of the world's apple production. ENZA branded fruit, 17 million cartons, is the single largest international apple mar-

ket. However, there has been much debate in recent years as to how the export market is structured. Many oppose the single desk selling of ENZA, with some growers and government supporting broadened export permits. Some additional export permits have been granted. The debate continues in NZ and time will tell which marketing structure is best for the industry.

Monday, Feb. 6 —
Getting An Education

After a rousing welcome to the 43rd Annual IDFTA Conference by President **Steve Blizzard**, speakers described the nuts and bolts of the industry:



In addition to improving fruit color, reflective film is laid shortly after bloom in many NZ orchards to improve fruit set.

Photo by Jeremy Compton in Jonathan Moffett's Royal Gala Orchard

• **Dr. Ian Warrington**, HortResearch chief executive officer, gave the Robert F. Carlson Distinguished Lecture on the "Success of NZ's Export-led Horticulture Industry." He indicated that, "the adoption of the Pyramid System (central leader) of apple production by NZ growers has promoted higher tree densities." This has facilitated growers' rapid turnover of cultivars to Fuji, Royal Gala, and Braeburn in the 1980s and '90s.

In a nutshell, Warrington's message was clear: NZ has capitalized on a competitive growing advantage while optimizing exports with significant volume and continuous supply of fruit, major publicity campaigns, and negotiation for market access.

• **Dr. Robert Wertheim**, from Belgium, outlined the reasons for High Density Production (HDP): early return on capital investment, economizing on labor input, and increased quality. He indicated four basic conditions of successful apple production:

light availability, light interception, light distribution, and temperature. Wertheim stressed that proper tree training at the correct time facilitated these things.

He felt that in Europe there was a congested apple market with continued low prices where only quality sells. He envisioned continued low prices for apples in the near future.

- **Dr. Jens Wunsche**, HortResearch Scientist, NZ discussed apple tree physiology in general and canopy light interception in particular, including those factors that increase canopy light interception: increased tree density, high leaf area per tree, reduced distance between rows, increased tree height, and north-south row orientation.

- **Pat Murray**, ENZA general manager for strategic marketing, spoke about "Managing the Marketing Conflicts" inherent in new varieties. He indicated market dynamics are aggressive, retailers are becoming more powerful, and consumer tastes are changing. Therefore, he said, "new varieties per se are not the panacea unless we (i.e. ENZA) can create sustainable business solutions (i.e. controlled commercialism)."

He spoke at length on intellectual property rights and their importance to the NZ fruit industry. He was of the opinion that it was the job of government to manage intellectual property.

We noted throughout our trip that there were great concerns over marketing issues expressed by growers and our hosts. It was clear to us the changes in the granting of export permits had greatly politicized the marketing of pipfruit in NZ. It was not possible to fully grasp the dynamics of these issues on this trip except to say there appeared to be many opinions and enough hard feelings to go around.

- **Doyle Fleming**, Washington State orchardist, and long-time orchard systems experimenter, spoke on his evolving experience with training systems. His favorite quote, which he attributed to the famous Washington orchardist, Grady

Auvil, was, "Anyone can save money. I am in the business to *make* money!"

"Bottom line," said Doyle, "minimize tree training, maximize tree numbers." He reasoned that maximizing tree density resulted in earlier, greater, and more uniform produc-

tion, less labor, and reduced risk (or "production insurance").

He's also a believer in renovating or evaporating orchards. "All systems will raise apples, but not all systems will make money," he said. Growers need to cycle-out old non-productive orchards more rapidly.

So what's he planting now? New apple blocks are established 8 to 10 feet between rows, 1.5 feet between trees, M.9 rootstock, single rows, 2500 to 3000 trees per acre!

- **Dr. Steve Blizzard**, president of IDFTA and veteran speaker, gave an excellent overview of the fruit industry in California. He stressed that California growers were always able to gear up and get the newest apple cultivars established quickly. His thoughts were that Pink Lady was hot, Granny Smith was holding its own, and Fuji was an endangered species in California.

Tuesday, Feb. 7 —
Into The Orchards

A full day of orchard tours in the Havelock North and Hastings areas (10 to 15 km southwest of Napier) on the slate. First an orchard visit to Johnny Appleseed Company. **Lynn Thompson**, orchard manager of the 400-hectare operation, covered the highlights of the operation. They were focusing on the new cultivar Pacific Rose for the local NZ market. Locals pay three times the price for this new cultivar as compared to Pink Lady. "We cannot give Pink Lady away in NZ."

We toured a 4.5 hectare block of Pink Lady planted in 1996 for export. This block was unique as it was planted on rented land with a 13-year lease. The land was selected for its location and soil characteristics — weak soil with a north-facing slope helped to maintain tree size on Pink Lady. Both Mark and M.26 rootstocks were utilized with tree densities of 2000 trees per hectare at 3.5 x 2 meter spacing. Thompson indicated Mark had outperformed the M.26 trees by 50% the first four years. Large fruit-size was maintained with deficit irrigation. "We know this is not good for Mark rootstock," said Thompson, "but we have been getting away with it in the early years with very high production." Overgrowth at the Mark graft union was beginning to show, as is typical of Mark grown in North America.

Second, we toured HortResearch's

Hawke Bay Research Center in Havelock North. Opened 50 years ago, Hawke Bay is where some of the pioneering research in controlled atmosphere storage was completed, allowing NZ pipfruit to reach global markets in near-perfect condition.

Hosted by HortResearch Scientists **Stuart Tustin**, **Mike Malone**, and **Peter Lo**, we were given an extensive tour of the Center's apple rootstock and horticultural trials.

Tustin stressed the positive influence of the maritime climate on NZ fruit growing. The Hawke Bay area receives about 32 inches of rainfall per year with late summer usually being dry. He also indicated that they had a very windy climate. This was evident in all the orchards we visited with windbreaks around most plantings. Some frost occurs during bloom and some growers utilize wind machines (usually the last two to three weeks in October).

Tustin stated "our apple rootstock evaluations focus on finding dwarfing and semi-dwarfing stocks that have resistance to woolly apple aphids, fire blight, and Phytophthora."

We observed that the apple industry had not moved rapidly into dwarfing rootstocks. The industry has been based on MM.106 due to its resistance to woolly apple aphid. Dr. Tustin confirmed this: "under NZ high light conditions we have been able to make most cultivars perform on MM.106 like other dwarfing stocks, in a cropping sense, even though these trees on MM.106 are 4.5 meters high."

He has focused the rootstock program in a cooperative effort with Dr. **Jim Cummins**, now retired from Cornell University. They are most excited about semi-dwarf clones CG.202 and CG.210, which have been confirmed to be woolly apple aphid resistant.

At HortResearch we moved onto a discussion of their stone fruit breeding program with a taste testing of some excellent new white-fleshed peach, apricot, and nectarine cultivars. Most were numbered selections.

Wednesday, Feb. 8 —
Back To The Books

Back to the Municipal Theater for a second day of presentations. Speakers presented a wide range of topics from tree training of apples and cherries to internal rates of return on apple systems:



Tustin



Fleming



inson

• **Dr. Terrence Robinson** of Cornell reviewed his economic research on apple trellis systems. "The bottom line for profitability in apple systems is the difference in cumulative

yields over time by cultivar. Red Delicious never made money in our trials!"

• **Dr. Greg Lang**, Washington State University, reviewed management of young sweet cherry trees for early production. He stressed that this year's growth on cherry affects your crop for two years hence. His mantra

was the inducement of lower limb branches.

He advised, do not head standard stocks, but do head dwarfing stocks. He offered the use of bud removal and suggested the use of the plant growth regulator



Promalin by Valent U.S.A. to promote lower branches on sweet cherry.

For trees on precocious dwarfing stocks he advised to prune in the third leaf for fourth leaf production. He stressed sweet cherry growers must make crop load adjustments in years three and four to get fruit size and balance crop load to stimulate renewal shoots.

• **Daryl Oakes**, past president of IDFTA and an apple grower from New York State reviewed his apple operation with tips for success. A grower with 300 acres of apples, 90 nonbearing, stressed his goal was to eliminate all processing blocks and concentrate on fresh market. He is convinced that economics are driving his move to super slender spindle plantings to get more rapid turnover of cultivars.

He has grown his own apple trees since 1984 to reduce his dependence on outside capital. He also produces a higher quality tree as a two-year-old scion on a three-year-old rootstock. Planting these superior trees has saved him \$500 per acre in early tree training costs. He grades the nursery trees and plants in November.

He also felt strongly that it's "the efficiency of your harvest system that determines your bottom line."

• The IDFTA formal conference session closed with an excellent review of "Back to Basics" by **Steve Hoying**, fruit Extension specialist, Cornell University. He suggested the following:

- Get trees off to a good start;

- Plan far enough ahead to do this;
- Think 18 or more years out;
- Factor in successful orchard establishment;
- Select only the best sites;
- Avoid replant sites or fumigate;
- Install drainage or shape the field to improve depth;
- Adjust soil pH and fertility prior to planting;
- Improve organic matter content before planting;
- Plant only quality trees, well-feath-



Hoying

ered large caliper;

- Tree delivery — know when your trees are coming;
- Carefully manage and control cropping in the early years; and

- Use training techniques over pruning.

That's some good advice from across the world and from our own backyard. ●

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