

Why We Need to Learn Spanish



The Cutting Edge is a regular article written by Dr Jonathan Cutting for the New Zealand avocado industry magazine, AvoScene.

Recently I had the opportunity to visit Chile, among other things, to attend and participate in a workshop organized by the leading Chilean avocado consulting company, GAMA. In addition to being excellent and generous hosts it became very clear to me that these guys are not only keen to share their knowledge and experiences, but much more importantly, they know their stuff! They were happy to talk about any topic and while they were open to new ideas and approaches they also displayed strong views on the “best” way to grow avocados.

For an old Anglocentric like myself, this visit really was a case of “waking up and smelling the coffee.” A small group of leading academics and technical specialists from a range of English speaking countries are already forging strong personal links with their Hispanic colleagues in countries like Chile, Peru and Mexico. My lasting impression is that if we want to be part of the avocado world, at least technically, we will have to learn to speak Spanish. So what is going on in Chile? Are we ahead or behind and can we remain competitive in this increasingly global world?

All my time in Chile was spent 150 to 200 km north of Santiago where I was based in the town of Quillota. This is the old

historical centre of the avocado industry and I had the privilege of seeing a mixed Hass and Fuerte orchard planted in 1948 on the Huerto California Estate. The old orchards are all planted on the flat land in the river valleys. Chile, as you probably know, is a rather long and very thin country. On the east are the Andes mountains and on the west the cold Pacific ocean. The geography is characterized by a number of valleys flowing down from the Andes to the ocean. As a result of this, Chile has an extremely diverse range of climates from very hot and extremely dry subtropical environments in the north to wet and cold fiords and glaciers in the south.

The first thing that strikes you about the Chilean avocado industry is the sheer scale of the business. Grower numbers in Chile and New Zealand are similar, they have somewhere around 1,400 growers versus our 1,200. The big difference is that those Chilean growers collectively farm over 30,000 ha of avocados compared to our 4,400 ha of avocados (20 ha orchard average versus 4 ha in New Zealand). There are obviously many growers still farming on small 4 to 10 ha orchards but the big new trend is towards mega orchards – 400 to 500 ha plus, normally on valley sides – and some growers have more than one orchard like this.

Chilean nurseries are also rather busy, producing in excess of 3 million avocado trees per year. When one considers that many of the very large avocado estates produce their own trees it is obvious that more than 3,500 hectares are being planted annually, even at the high planting densities being used in Chile (600 to 1,000 trees per hectare).

The Chileans are going about the horticultural business of growing avocados very differently to New Zealanders. What are they doing differently and why, and more importantly, what can we learn from the Chileans. It is important to gain an understanding of their industry so that the “evolution” of their industry can make sense to us.

So what are the big key drivers – first the industry is strongly export focused. The vast majority of the industry growth, in terms of new acreage, has occurred in the past 15 years and has been focused on the lucrative USA market. In fact growth in production and export has been truly amazing and it is helpful to make a comparison between New Zealand and Chile.

Table of New Zealand and Chilean production for the period 1999-2005

Year	NZ Tons	Chile Tons
1999/2000	9,400	49,000
2000/2001	12,600	75,000
2001/2002	11,800	77,000
2002/2003	13,200	105,000
2003/2004	10,600	110,000
2004/2005	12,100 (esti)	140,000 (esti)

It is interesting to note that we have been losing ground against Chile as measured by production from being one fifth of their size in 1999/2000 to now being about one twelfth of their size. This is despite our own view of the “rapidly growing” New Zealand avocado industry. I accept that we have had two very low yield years and that if the springs had been better we should have had a crop of about 17,000 tons this year (which would have made NZ one eighth the size of Chile).

I believe that Chile will pass California in terms of planted acreage this year or next year and probably pass them in terms of production in 2007 or 2008. Based on a 35,000 ha industry it can be expected that the Chileans will eventually produce between 250,000 and 300,000 tons of fruit annually. The Chilean population is only

15 million and unlikely to consume more than 20,000 to 25,000 tons of Hass. A home for all that Hass, with the type of values that Chilean growers have become accustomed to, may be a challenge and we may well see the emergence of Chile as quite a weak seller in the short term as it competes for export market share in existing markets and from existing producers.

This will have implications for New Zealand avocado producers as we currently share three export markets with the Chileans – Japan, Europe and the USA. That said, Chilean exporters are open and frank and will communicate with other avocado countries. In fact Chile is one of the open and generous participants at the Avocado Marketers and Producers Working Group forum. Chile will experience growth pains but we can have every reason to believe that Chile will be a responsible global player. All we need to do is ensure that the communication channels remain open.

The second key driver in Chile is production rather than yield. This is perhaps a surprising observation to some but a lot of the orchard development in Chile is aimed at early production rather than sustainable yield. For example high density spacing at 4x2 meter or 4x4 meter spacing using trees on Mexicola seedling rootstock. I particularly pick on the Mexicola seedling rootstock because it is known not to be good against *Phytophthora* root rot but it is cheap and easy to produce trees. Graft incompatibility with Hass scion is widespread. All that said, I saw no evidence of root rot at any time in Chile and no evidence that Chilean growers inject their trees against *Phytophthora*.

There is very little interest in clonal trees. One of the bigger nurseries in Chile that I visited produces around 600,000 avocado trees annually and only produces 5% of its total production as clonal trees.

One Aspect of high density planting, especially when trees are planted 2, 3 or 4 metres apart in the rows with rows,

typically being 3 to 4 metres apart, is that the trees quite quickly touch and some sort of canopy management is then necessary. I saw several approaches to canopy management in Chile. There were no new radically different approaches from that applied elsewhere in the world. The key issue in Chile is that all canopy management is done manually, as it is impossible to get a tractor and saw blades between the rows. Nothing I saw indicated that their practices are sustainable over time and I would predict that a 'crunch time' awaits the industry. That said I also believe that the best way to solve a problem is to have to solve it and I am sure that with 600-700 growers all looking and considering the issues that they will make progress toward developing a solution.

Another interesting aspect of their production system is the intense focus on fruit set. Pollinator trees, most commonly Edranol, are planted at 6-10%. Chilean avocado growers make extensive use of bees and use 10-15 hives per hectare at costs quite similar to New Zealand. Incidentally Chile also has Varroa mite. Pollination and fruit set is a testing time for Chilean growers, especially those growers on the coast who have to contend with quite poor environmental conditions including low temperature, low sunshine hours and coastal fog which can last for days. Generally winter cold is a problem and many orchards are equipped with frost fan machines. In extreme cases snow can even be a problem!

Chileans set their orchards up very well. I would go so far as to say that they do a lot better job than we do. Even though they have very little rainfall and rely heavily on irrigation there is a strong emphasis on drainage and properly aerated root zones. I was particularly interested in their approach to increasing the feeder root zone using ridging. Ridging is an established practice on all new orchards and there are even growers converting existing flat orchards into ridged orchards using diggers to dig rows between trees. Ridging is not confined to flat land and is vigorously implemented on steep hillsides

as well. Another aspect of production that receives attention is obviously irrigation. Annual rainfall in region V is typically 150 – 250 mm in the avocado production areas. Snow melt derived water is generally not limiting and flows down the valleys in ancient canals. Most valuable agricultural land has an attached water right. Growers most commonly use under-canopy micro-spinners and trees are often skirted to allow for uniform water distribution. Some growers occasionally use drippers. Nutrition was interesting in the large amounts of nitrogen in the 200-300kg elemental N range are used annually. Compare this to New Zealand where annual use of nitrogen is in the 70-140kg elemental N range. There is also strong emphasis on boron, iron and zinc. More recently there has been interest in magnesium and potassium. All nutrition is applied as fertigation and the timing principles developed by Prof Carol Lovatt are generally adhered to.

Overall there is plenty that we can learn from the Chileans despite their climatic differences. We can definitely learn from their attention to detail in terms of pre-plant soil management and the creation of an oxygen rich zone. I still believe that this is the most limiting factor in avocado production in New Zealand. It is interesting to note how rapidly the Chilean avocado trees grow and how soon they carry large crops versus our trees here in New Zealand. Secondly we need to be more proactive and plan rigorously to ensure better fruit on a regular basis. Chile has more difficult environmental conditions than New Zealand but sets more regular crops and I believe their focus on pollinators, bees, irrigation and setting the trees up for flowering are behaviours that are lacking in New Zealand. Growers would do so well to visit Chile – my advice is to go singly or in small groups and learn to speak Spanish.

I believe we can compete with Chile, and effectively too. They have advantages and so do we. We can co-exist and there may even be opportunities to cooperate but we will need to keep talking directly to them.

On another note – the fruit set here at home is showing great potential. The weather has been fantastic. Lets hope that the fruit set is amazing and that finally we can kick start our industry on the growth track that is so overdue and, dare I say it, now necessary. Have a safe, festive and blessed Christmas and all my best wishes to your and your families.