An Almond Story

Early March in the central Californian valley and many of the trees are in blossom. Pink blossom on the peach trees and white blossom on their prunus amydgalus close cousins, the *almond* trees. Beehives were stacked in half-dozen hive lots at the end of about every fourth to sixth row of almond trees, and there was an early morning nip in the air. Almonds are the prime reason for our visit, to make a closer connection with the farmers, to understand their environment and their relationship to the world organic community and to find some answers to the many questions we carry especially around bees. In fact, we wondered why we had taken so long to come to California to ask these questions when we have visited farmers in far more remote corners of the organic world only to find some of the more interesting dilemmas are here in a western context.

The valley is 650 - 700 kilometres long by around 60 to 90 kilometres wide running parallel to the Pacific Ocean but bordered by mountain ranges on each side. It is actually two valleys: a wetter northern Sacramento valley, and a drier southern San Joaquin valley. We spent our time in the southern valley, a semi-arid and very flat landscape with the mountains on each side obscured by smog until the wind blew through on the second day and we could see a little snow on the caps of the ranges. The alluvial soil means this is one of the world's most productive farming regions, but it is achieved by surface water diversion and groundwater pumping which is leading to aquifer depletion.

The two valleys are a bowl of abundance for agriculture. They can grow any non-tropical crop: the wetter northern valley has rice, grains, vegetables, fruit; the southern valley has the crops which rely on less water and more sun, grapes for wine and raisins, peaches, walnuts and, of course, almonds. The almond is native to the Mediterranean and Middle East regions but was introduced into the perfect environment for its growth, California. Over time the Californian varieties, such as Nonpareil, Carmel varieties and Butte have evolved and are now far preferred to the Mediterranean varieties such that 80% of the world's production is now from California, but with this come problems.

The valley has changed dramatically with less than 1% of the land still retaining its native flora and the fauna becoming endangered species. The return from almonds is better for a farmer and so, as decision time comes at the end of a cycle of peach trees or walnut trees, the almonds have the financial advantage and a mono culture is growing. The pressure is on to plant more trees per acre and we saw how the gaps between trees in new plantings were coming down, we heard how the costs of inputs were rising and the squeeze was on nature. Some farmers were wondering about water. The rainfall this year is very light; there is little snow on the mountains and come their northern hemisphere spring there will be little runoff from the mountains. What will the water board do? Will I be able to get enough allocation of water? Will I have to bore deeper to get enough water?

You may be thinking this doesn't sound like a picture of an organic farmer and you would be right. We found two types of organic farmers, those in it for the organics and those in it for the money. The almond price may encourage farmers to grow almonds, but the organic almond price encourages many to consider organics on price alone.

It is possible with good farm management and good post farm logistics to get a yield from an organic crop that means the price differential between conventional and organic is minimal. It is not so with almonds. The yield from conventional almonds is around 3500lbs per acre, while from a certified organic acre it is around 2000lbs. I don't know what sort of fertilizer they use on conventional but it sure makes for a wide difference. Organic farmers in comparison have little material to compost in order to build fertility and have to bring in liquid seaweed and other inputs to keep the productivity up.

The difference in yield also means there is a huge differential in price. When the organic price is twice the conventional price then farmers begin swapping to organics mostly for economic reasons. This then is the industrialization of organics. Of course there is a transition time to become organic, but the demand for organics up to the end of 2008 meant that the price differential was there and many farmers were growing organically and putting new blocks into organic plantings because of the financial return. The differential collapsed after the financial crisis and many 'organic' farmers swapped back to conventional. We heard one interesting comment from a farmer that swapped back who said that the best producing trees are the ones that started as organic plantings; when returned to conventional and given a fertilizer boost, they really flourished.

We wondered why farmers we had bought from in the past could no longer supply organic and now you know why we were speaking to conventional farmers. But what of the real organic farmers? Yes they are there and feeling this increasing mono culture and industrialization of agriculture rising around them and we wanted to know how they were coping. Commitment to organics, yes not a question. Improving the environment, moving away from a mono culture, well it is hard going. The almond trees have a productive life of about 25 years, so once they are in they are committed to 25 years.

Well, what about planting between the rows with another crop? Right now they are trying to keep all other growth out. Growth holds moisture and they want to keep water moving. At this time of year, actually the nights we were there, there is a real threat of frost which can destroy the young buds coming through affecting the eventual harvest. Water is sprayed onto the trees through the night to keep the temperature up, but they also want the water to drain away rapidly. Well then what else do organic farmers do? They were the farmers with the solar panels, trying to cut their external power costs and making use of the attributes of the environment in a non-destructive way. They were doing many things but caught trying to work between the economics of the valley and the ideals of organics.

And then the big question right now, that is if you have seen the movie *Queen of the Sun, what about the bees?* We asked the conventional farmers who had transitioned into organics and mostly got a response as if we had asked a nonsensical question, something like, why is water wet? Bees are needed to pollinate the trees and it is a fact of life. What are you asking? Around 1 million hives are trucked into California every year from all around the USA for around six weeks during the time of the blossoms. Queen bees are imported from as far away as Australia just for this event. Bringing bees into California every year is a massive undertaking and is the world's biggest ongoing human intervention in nature. It is very disruptive to the life of bees, very destructive to their welfare and, at a time when across the world we are experiencing bee colony collapse disorder, it raises many questions. We asked organic farmers. Their response was mostly along the lines of we are not bee keepers, we don't have that specialist knowledge. Even if we did there is not enough variety of flora to sustain them through the year. You can see we try to keep the area around almond trees free of plant growth. What we can do is form a relationship with the bee keeper; we can assist them to maintain the health of the bees; we can care for them while they are here, but there is not much more we can do.

So a few days with these almond farmers (we also spent time with nearby raisin farmers, but that is 'a raisin story') brought to life some of the dilemmas that exist where organics interfaces with industrial agriculture, where the challenges of working with nature don't always have ready answers, and where forming human connections brings some understanding of the reality of working with the 'dirt' in my neighbourhood.

- The outlook for organic almonds – there has been a decrease in the acreage in organic almonds as the demand slumped since the end of 2008. Now the demand is growing again but the supply is running behind the demand. Expect the organic almond price to rise until new organic plantings come on stream (3-5 years) or until conventional farmers transition to organics (3 years)

- Pasteurization - Since 2007 the USDA has required all domestically produced almonds for domestic consumption to be pasteurized or chemically treated with propylene oxide to prevent the occurrence of salmonella. This regulation does not apply to almonds that are exported and all almonds Ceres imports from California are raw and are not pasteurized.

- The Almond Board of California recognize the poor state of bee colony health and are funding research into colony health and colony collapse. They have guidelines in place for suggested contracts between beekeepers and almond growers to manage the bees. Research is underway for self-pollinating almond varieties, but will take a long time to work into the 25 year life cycle of an almond orchard. In the meantime the condition of bee health is declining rapidly.