**What Is NZ Farming Coming To?**
By Phyllis Tichinin

We've been through some astonishing changes of perspective on farming in the last 60 years…from a 'pound a pound' for wool, to it not covering the cost of shearing … from dairies 'only' in the Waikato and Taranaki, to dairies on the dry sheep lands of Canterbury … from organics as entirely fringe, to a consistent topic in the rural pres … from Super P or nothing, to heavy urea use and a plethora of alternative fertilisers.

What is New Zealand farming coming to?!

Hopefully, we're coming to a farming style that takes advantage of our great climate, heightens our knack for innovating and regenerates our soils while producing maximum quality of agricultural product.

It's no longer a quantity game. We're too small and far from our key markets to produce *average* food. There's no way we can expect to contribute meaningfully to 'feeding the world' and we should drop that illusion forthwith. We need to produce what the premier markets of Asia, Europe and US want or the cost of transport (as petroleum prices soar) will sink us.

Instead of 'get big or get out,' I think it's going to be 'produce flavour and nutrient density or get out.' We've been talking big and riding on our laurels about our NZ quality produce, but the international goal posts have shifted. How can we catch the flavour wave, stay on top AND enhance environmental resilience and productivity? Is it even possible?

I believe it is, and over the next several BayBuzz editions I'll be writing about the options and opportunities that are within the grasp of Hawke's Bay farmers, with examples of farmers in this region who are taking strides to do just that – focusing on soil regeneration and observing positive changes in crop results.

There is a fundamental shift in science perspective going on. It involves letting go of Descartes' 400-year concept of the universe and man – both as machines with discrete and predictable inputs and linear, mathematically predictable outputs. This world view has shaped science and our perspective on agriculture, most visibly in our approach to fertilisation.

Our major agricultural model is one of knowing how much a crop takes off the farm and putting that much NPK into the soil so it's there for the crop to remove. Input to equal output…simple, linear and fundamentally flawed. Soil/plant/microbe interactions are not reducible to straight mathematical terms in that way. Nature does not follow Descartes' principles of reductionism – the world is not a machine. It is a marvellously synergistic system where 1+1 can equal 3 or 4, and maybe if conditions change it could be 6!

Admittedly not a comforting thought for many of us, as it would be easier if we were told clearly what would happen if we did this or that … put this or that on our crop. And that's the way it's been working for the last 75 or so years with our fertiliser and cultivation regimes – what the science fraternity now calls a linear, reductionist approach. Safe, predictable and landing us in a pot of hot water on the environmental and human health fronts.

We're losing soil tilth – soil with the proper structure and nutrients to grow healthy crops. We're losing soil full stop. Our fertiliser and crop protection inputs and costs have risen in comparison to yield, and what we produce doesn't taste or store as well as it used to. To add the final blow, our markets are complaining about the quality.

A few years back the Japanese told Zespri to stop sending them tasteless fruit. The broadside on our lamb pre-Christmas by top Kiwi chef Peter Gordon is a more recent example. According to *Farmers Weekly*, he said the quality of NZ lamb had dropped but prices had risen. A New Zealand beef and lamb ambassador, he owns two leading London restaurants and Dine at Sky City in Auckland, but said it had come to the point where he would use Welsh lamb!

And that doesn't even begin to address the health aspects of what we are producing. We've got some cold hard realities to face up to, but the good news is that there have been some quantum leaps in our understanding of the microbe/soil/plant interface in the last 20 years. And that is just what is needed to fix many of these problems. This is an era of hope based on a new view of science and the world – a wholistic, synergistic view that routinely combines 2 + 3 and gets 6.

We now know how to encourage bacteria in the soil which can fix hundreds of kilos of atmospheric nitroge per hectare per year, independent of clover nodules. Grasslands ecology and biological fertiliser specialists are devising pastoral systems that sequester tens of tonnes of atmospheric carbon per ha per year. There are tests for nutrient density that could be used to compare overall antioxidant values in produce, so that price premiums could be earned for verifiably more health-giving crops. We're discovering that there are ways through plant nutrition to make crops truly pest and disease resistant without expensive, lengthy plant breeding programs and without resorting to market-costly GE. And farmers exploring these methods are reaping rewards of more humus in their soils and better crop yields.

Rather a lot revolves around our willingness to acknowledge that key aspects of the way we have been farming are no longer working well, for our environment or for our pocketbooks. The job of farmers is to grow food for people.

Given that people's health depends largely on what they eat, our general farming score card is not in good shape. A brief walk down the street or a glance at the health section of a newspaper will tell you that we're losing the battles of obesity, diabetes, heart disease and cancer. It is all about food, but not just about the amount we're eating compared to how little we're exercising. Much of the health crisis is about the actual quality of what we're eating. For example, the vitamin, mineral and plant biochemical content of that potato we're eating varies markedly depending on how it is grow and the 'foods' it's given throughout its life. We need to begin thinking of our food, not in terms of carbs, proteins or fats, but in terms of antioxidants, vitamin precursors and enzymes since those are the food characteristics that truly govern our health.

The sorts of questions and concepts we'll cover in other issues include:

- What are top-end consumers asking of their food and how can we grow it?
- Are there some key concepts that underlie all quality food production and how can we move toward them?
- What is humus and is it worth the effort?
- Why is everyone going on about calcium?
- ND used to stand for 'No Deal'…what is nutrient density?
- Carbon sequestration….don't we already have high carbon soils?
- Can farming *exceed* environmental quality expectations?
- Is there more going on between soil and plants than meets the eye?
- Trace elements…necessary or frivolous?
- What is this talk about 'energy' in agriculture?
- If we had to do without glyphosate, what would we do?
- How can we farm to create optimum human health?

In short, where does the future of farming lie and how can we make Hawke's Bay the epicentre of a new agri-culture? As much as possible, we'll look at these questions from the practical perspective of Hawke's Bay farmers who are alreading on the leading edge of best practices. That said, we think this is an important discussion not just for farmers, but for *all of us* as food consumers … especially those of us whose economic livelihood is dependent on a globally successful farm economy here in the Bay.