



28. Food Supply Disruption

Recorded on 27th May, 2019 in Byron Bay, Australia.

Future Sense is a podcast edited from the radio show of the same name, broadcast on BayFM in Byron Bay, Australia, at www.bayfm.org. Hosted by Nyck Jeanes and well-known international futurist, Steve McDonald, Future Sense provides a fresh, deep analysis of global trends and emerging technologies. How can we identify the layers of growth personally, socially and globally? What are the signs missed; the truths being denied? Political science, history, politics, psychology, ancient civilisations, alien contact, the new psychedelic revolution, cryptocurrency and other disruptive and distributed technologies, and much more.

This is Future Sense.

Nyck: Good morning to you. You are tuned to BayFM 999, your community responsive radio station, your own and only radio station, here on the prow of the ship of Australia, you could say, right on the front there. A bit Titanic, isn't it? Good morning to Steve McDonald.

Steve: Good morning, Nyck. Here I am at the pointy end.

Nyck: You're at the pointy end; we are at the pointy end. I guess it's quite a good metaphor, one could say, for us here on the eastern-most point of Australia, on the prow of that ship, on the Titanic as we're going forward into the future at a pace.

Steve: It reminds me of 2012 when, of course, it was 2012 here before it was 2012 in the rest of the Western world, and so we were able to tweet, 'we've arrived, it's ok.'

Nyck: Always first, except for New Zealand.

Steve: Yes, of course, not to forget our Kiwi brothers and sisters.

Nyck: Absolutely not, and good morning to those Kiwi brothers and sisters who may be listening. You might be here because lots of you are, or you may be in New Zealand

listening on www.BayFM.org. It would be nice if you're out there, some New Zealand listeners. You can always text us, by the way, on 0437 341119. It comes up on the computer here, from wherever you are in the world.

Steve: Speaking of being in front of us, they certainly seem to be in front of us when it comes to politics, don't they?

Nyck: Oh, yes. Oh yes, indeed, although I have to say I was very impressed this morning to read that our Prime Minister, Scott Morrison, has reshuffled his ministry and in fact, Ken Wyatt, a Yamaji Wanggai, Noongar man, is the first Aboriginal person to hold the Indigenous Affairs portfolio, so we certainly have to make some sort of congratulations about that.

Steve: Yes, that's great news. Wonderful.

Nyck: We are going to be talking a bit today about climate; a bit of an update about some of the many expressions, and I guess, for me, the complexifying of the climate debate, which I think is a good thing. We seem to be moving into a little bit more nuanced debate around climate. Perhaps that's only some of us, but I think there's some truth to that now.

Steve: I think there certainly is some truth. I'm noticing a trend in the emergence of alternative news sources that are starting to take different perspectives rather than just fall in line with the global warming agenda, as it seems to be, which is interesting. Also, I think it's really important that we look at what's actually happening rather than get carried away with fear—fear-based predictions and projections about what might happen.

Nyck: Yes, and we'll also be looking, in the second half of the show, at a completely different topic—not unrelated in some ways, because nothing is—the topic of the rise perhaps in the understanding of, the experience of, the use of intuition, ESP, of telepathy. Is it emerging on the planet? Are more and more people finding themselves more capable, having more experiences of these things? And what does it mean? Does it show something about the way we are evolving? We certainly think it does, and we'll be talking a bit about that in the second part of the show.

Nyck: You're tuned to *Future Sense* with myself, Nyck Jeanes, and Steve McDonald. As I said, we're going to start today talking about climate, in particular, and some of the current and recent indications of what's happening with a very complex system that we know as climate here on this planet.

Steve: We are indeed. There's been some very unusual weather in the northern hemisphere over the last year or so, particularly a very, very cold winter in the USA, and the spikes of both hot and cold temperatures seem to continue in various places around the world, including causing drought here in Australia.

I guess the first point is that our climate system is a complex adaptive system, I would argue, although most scientists wouldn't expect that the system is adaptive because it implies that the system has intelligence. Personally, I think the system does have intelligence.

Nyck: Seems to be almost the key word in that phrase, complex adaptive system, is the word 'adaptive' to me.

Steve: Yes, and this is part of the challenge of our current climate science. It's being studied as a complex system, but not a complex adaptive system, and that's one of the key pieces that's missing, in my opinion.

When we look at complex systems and complex adaptive systems, what we see is that when they go through change, they are quite volatile. Something that's characteristic of change in a complex system is what is called the 'slingshot effect', where you'll get something like the process of pulling back an elastic band on a slingshot—this tension created by moving in one direction and then all of a sudden the system will spike in the opposite direction, just like releasing that elastic band on a slingshot and then you get a big movement in the opposite direction. This is a non-linear trajectory, and again, this is one of the challenges being faced by climate science at the moment. There is often an assumption that the climate is a linear system, and if it's getting warm somewhere now, it will continue to get warm indefinitely.

If we look at the global warming predictions that have been made ever since climate became an issue some years ago—I guess most famously with Al Gore's movie—even if you go back and watch Al Gore's movie, he's not talking about linear systems there. He makes some linear assumptions based on the graphs, but part of his movie actually talks about warm weather changing the Atlantic Ocean current and shutting it down which brings an ice age. That's actually in his movie, if anybody cares to go back and look at it.

So you get this non-linear trajectory in complex systems when they're going through change, where tension builds from trending in one direction and then, like the elastic band on a slingshot, it drives really significant change in the opposite direction, and during the lead up to a major change in any complex system, there will be repeating small-scale slingshots, where it flips backwards and forwards and you get increasingly warm-increasingly cold weather, for example, in a climate system until you reach a tipping point and a large-scale trend occurs and then you get a significant longer-term trend in a particular direction.

We can see this pattern in all sorts of complex systems, and the stock market is an obvious one. If you go and pull up a stock market chart on your internet browser, then you'll see it ain't linear. It certainly has a longer-term linear trend, but that changes periodically; it goes up and down. The boom and bust is the classic pattern there, and within the boom and bust periods, you get these smaller-scale spikes in both directions, and then often before a really significant change, it will spike quite significantly in the opposite direction first and then off it goes. There are many, many others; there are so many complex systems on this planet.

Nyck: We could even say that a person's health, when someone comes down with the flu, for example, you might get hot, you might get feverish, you might get sweaty, then you might go to bed and you might get chills. Some of your body's flipped in the other direction in order to cope with the interruption or disruption to the system.

Steve: Yes, exactly, and even with emotional transformation. When we go through emotional change, we often go to the depths before we reach the subsequent highs.

Nyck: And in fact, that is, in modern psychology and psychotherapy, and certainly new age expositions of that kind of work, it is all about getting to that darkest, deepest, dirtiest part of yourself in order to transform it.

Steve: I love the grin on your face when you said that, Nyck. If only you could see it, folks.

Nyck: I do like to be in that space.

Steve: Goodness me.

Nyck: Old alchemist at work.

Steve: Moving right along, if you look at large-scale social transformation, social systems, often you'll find that a social system won't actually go through significant change until there's chaos. It works and it works and it works and then slowly, it doesn't work so much and then it doesn't work some more, and eventually it turns into chaos and then people go, 'OK, maybe we should change this and then it'll be reorganised and then it'll be all good again for a while'. So this complex systems change pattern is everywhere if you care to look for it, and if you go looking in complex systems for a linear trend that lasts for 100 years in the same direction, then I guarantee you probably won't find it, because any trend in a complex system is made up of a fractal pattern like a sine wave, essentially.

Nyck: I have to ask a question here, because as you're speaking, I'm thinking 'how many people on the planet ...', and it's a big generalisation, of course, in so many ways, but, '... are actually capable of, or even want to start to look at things in a more complexified way, in the way we're talking about? Are able to or willing to?'

Steve: It's a good question. Systems thinking really only emerged with what we're calling this new paradigm, which is Layer 6 in Graves's model. Layer 5 is the Modern Scientific-Industrial era and that way of thinking, which emerged roughly about 300 years ago—that's a vast generalisation, but it was roughly about 300 years ago that we had things like the Industrial Revolution, the Scientific Revolution, and those sorts of things—and thinking shifted. As I think we were saying on a recent show, if you go back to the previous paradigm, the Agricultural era, which was dominant through the Middle Ages and really for thousands of years earlier than that, then thinking was significantly different. There were some really interesting fixed ideas, like the fact that the Earth was the centre of the Universe and everything rotated around the Earth, and these things, while they seem extremely sensible at the time, ultimately they shift and change when we go through these paradigm shifts and our perspectives on reality change.

Nyck: People would argue that our science is now so far evolved from that era of Galileo, for example, who we were talking about there, that we don't make those mistakes anymore; we've evolved somehow to a point where our science is much more certain and less sort of wacky. But actually, no.

Steve: I guess you missed that recent meeting of the Flat Earth Society, didn't you, Nyck?

Nyck: I didn't go, I had another appointment. I had an appointment with the people who are trying to get to Alpha Centauri next week.

Steve: Right, OK. Anyway, yes, we live in a very rich world, and the interesting thing about these paradigms is the old ones really don't go away—not for a long time at least. They remain nested and we can find all of these different old paradigms in various pockets of society around the world. And really, if you take any society—take a city, for example—then you'll find these layers of consciousness embedded in different places in the city, and it is also directly related to the complexity of life conditions. The more simple and stable your life conditions are, then the more you can get by on simple ideas and simple thinking and simple problem-solving, and as life conditions become more complex, then your consciousness needs to adapt and it will adapt.

Nyck: In other words, there is a place where ignorance is bliss for some people.

Steve: Exactly. We're looking for it so if anybody has any ideas, please email us.

The other thing I was going to say about complex systems is that a calibration of a system usually involves numerous smaller changes until a balance emerges. Whatever you do, whatever your hobby is, just think about how you go through calibrating things. If you're a musician and you're tuning a string, it's pretty rare just to turn the knob once and you're in tune—unless you're very, very good at it—but often you've got to turn it backwards and forwards a little bit, little bit, little bit, and that's the same pattern of one direction, the other direction.

Nyck: Exactly. An old teacher of mine, Scott Washington, and William Whitecloud—and people would be familiar with his teacher back in the day—used to talk about the same thing with regard to shooting a rocket to the moon. We assume that technology means rockets are shot to the moon, and it's like, from here to there and it's all planned out, it's all algorithms and technology, but it's not true. It's 'create and adjust' its aim and its deviation, and then actually having to correct again—deviation, correct, deviation, correct—'create and adjust' as Scott used to call it.

Steve: It reminds me of the *Apollo 13* movie where they lost proper control of the directional adjustment of the spacecraft on the way back and the control lever to fly the ship wasn't working in the correct sense and he had to try and work out which direction he needed to push the stick to make it go left. Very interesting.

That's a really good analogy for the process of discovery of how to navigate a complex system. You encounter something and it seems chaotic, but through a process of analysis and practise and experience, you can work out which way to pull the lever or multiple levers to make a correction in a certain thing. I guess that's a really good analogy for our approach to understanding climate at the moment. We really don't understand how the climate works, and by climate, I'm talking of periods of 30 years-plus—the weather patterns over that time.

Nyck: Not just the weather, which is a different thing.

Steve: Not just the weather, which we, incidentally, still can't predict accurately—a couple of weeks out and then everything goes chaotic, so we're still going through this process of calibrating our own understanding of how the hell this works and how much influence we're having on it, and if it's possible at all to obtain any kind of control over it, which I honestly doubt at a global scale—not anytime soon anyway. How could we, would we, might we, go about understanding how that works? We're very much in the dark when it comes to that, and it's been an extremely cold winter in North America.

Nyck: Yes. Lots of things currently happening there in terms of crops and so forth.

Steve: Yes. The Canadian government just issued a written report which includes a report of sea ice. This is from quite recently—this year, 2019—and the current levels of sea ice in Canada are the highest recorded since 2004, which is quite interesting. We'll post a link to that if you'd like to take a look at it on *Twitter* (<https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/sea-ice/2019/SeaIce-EN.pdf>). Of course, the US agricultural industry has been hit very, very hard over the past season by heavy snowfall during winter—an extended winter, which really still hasn't finished in some areas; even though it's now May, there are places which are still getting cold weather and snow.

Nyck: As of a few days ago, the US corn planting is the slowest on record for this time of year, so obviously the weather has shifted significantly. The ground is actually frozen in many places and they can't plant; even more-so in Canada.

Steve: There are compounding issues, and in the larger conversation that we have on this show about the collapse of the old paradigm and the emergence of the new paradigm and the transformational change that is already underway, it's very important for us to start to consider the compounding effects of some of these things. It's fine to just look at the news and say 'this happened', but then when you start to think about the implications of that, they can add up to very, very serious issues somewhere down the track.

I've got an article here from the *LA Times* from recently, headed *Winter has Come to California ... in May. Record Rainfall, More Snow on the Way* (<https://www.latimes.com/local/lanow/la-me-winter-weather-may-california-snow-rain-20190517-story.html>). It says that Southern California has been hit by the wettest winter in years, and two months after the official end of winter, the rain and snow just keep coming. California was clobbered by another storm recently, which dumped snow on

the Sierra and set a record for rainfall in the Southland. So it's been unusually cold over there, and as Nyck was just saying, the crop plantings have been disrupted for various reasons, whether it be that the ground is still frozen ...

Nyck: Or, in the Midwest, farmers are facing devastation following Midwest floods. They were hoping to "ride out the US-China trade war by storing their corn and soybeans anywhere they could", according to this article from Reuters, "in bins, plastic tubes and barns or even outside, (but) now the unthinkable has happened. Record floods have devastated a wide swathe of the Farm Belt across Iowa, Nebraska, South Dakota and several other states. Early estimates of lost crops and livestock are approaching \$1 billion in Nebraska alone" (<https://www.reuters.com/article/us-usa-weather-agriculture-idUSKCN1R12J0>). So, yes, it's a complex equation. One place can't plant, another place floods, another place drought.

Steve: In Iowa, water treatment plants are being shut down and they've had to truck in fresh water, as well as having the agricultural industry disrupted, and US farmers are starting to think about insurance issues around crop losses.

As you mentioned there, the US-China trade war is also an interesting factor here. Trump came out recently and said that the US government would buy crops off US farmers who are being impacted by the trade war with China. The USA exports a lot of grain—if I remember correctly, I think something like 40% of the world's corn comes from the US as an export—and so all of the crops that are usually exported to China, it looks like they won't be, due to the trade war between China and the USA. Trump's come out and said that the US government will buy those export crops so the farmers don't miss out, but now it's looking like the farmers won't be planting a good percentage of those crops, and so how's that going to work, I wonder?

Nyck: Well, even in Australia, for the first time in 12 years, we are going to import wheat, as drought has eaten so much into grain production here. There's a report from last week in *The Guardian* (<https://www.theguardian.com/australia-news/2019/may/15/australia-to-import-wheat-for-first-time-in-12-years-as-drought-eats-into-grain-production>). There are therefore "biosecurity concerns raised over import from Canada as Australia's winter crop forecast to drop 20% below 20-year long-term average", so great disruption. I think I mentioned recently, you'll notice already that some of our produce in stores here are very expensive: strawberries, \$10 a punnet, for example. There's clearly all sorts of peaks and troughs in supply and pricing.

Steve: Yes. I guess increases in food pricing is probably one of the most immediate impacts that we're going to see. There was also an article recently about the Australian grain organisation, which I'll grab in a minute and come back to, but there are a whole

bunch of implications here which need to be unpacked. Probably the first and most obvious is the impact on farmers themselves, and delayed planting or planting that might not even happen in some particular areas for the summer crop in North America; and then loss of income around that, and loss of food supply as a result. Just looking at corn in particular, corn's an interesting crop because it goes into so many different things—corn syrup that they make from corn goes into all sorts of different foods as a sugar additive.

Nyck: And most of the corn produced in the US is genetically modified too, of course, so there are biosecurity implications there anyway for those foods entering the food chain. Well, they're already in the food chain. Corn is probably one of the biggest and most contentious crops on the planet now, along with things like cotton, of course, but in terms of our food supply, corn, as you say, is everywhere, and it's problematic, I think.

Steve: It is very problematic, and when it comes to genetically modified crops and herbicides like glyphosate, the flooded farmlands mean that these substances are being spread beyond where they were being used. That's causing all sorts of issues, and many of the farmers now are using genetically modified seeds, which are glyphosate-ready.

Nyck: Roundup-ready.

Steve: In other words, the plant seeds have been genetically modified so that they won't get killed by glyphosate and so you can spray glyphosate on the crops, it'll kill everything else except that particular plant, and so for farmers who might not be using genetically modified crops, the floodwaters are spreading the glyphosate residue into their paddocks and potentially killing their next crop as a result. It's an interesting, complex, compounding issue that we're facing here.

Beyond the impact on farmers, we've then got the lack of food supply and the need to dig into stored reserves—grain reserves—and as those grain reserves get depleted, if we have another cold winter next year, then eventually you can project that out to the point where we're going to have a major, major crisis.

There are a number of predictions which have been made over recent years, one by *Armstrong Economics*, which is based on Martin Armstrong's computer algorithm and is quite successful in predicting key turning points in the financial markets. His computer has been saying for a while that around 2024 there's going to be a spike in food prices globally. What's happening now is a clear indicator that it is pointing in that direction.

Taking it a little bit further, if we look at the amazing study of solar dynamics done by Professor Valentina Zharkova in the UK, she has come out and predicted, based on the cycles that she's identified in activity on the Sun and how that impacts the solar wind

which blows over the Earth, and then flow-on effects to planetary climate, she has come out very, very clearly in a recent talk in London, which was mentioned earlier on the show in another episode, that she is pretty confident we're going to see widespread food shortages at a global scale between 2028 and 2032. She said very clearly, this is going to be of such a scale that if there isn't organised preparation, then it will be quite a crisis. Interesting times.

Nyck: You are here on *Future Sense* with Nyck Jeanes and Steve McDonald. We're talking here this morning, first up, for a little while longer, about climate on the planet and some of the indications at the moment of the trends and directions, if we can determine that, in this complex adaptive system that we live in.

Steve: We're particularly talking about what's actually happening, not fear-based predictions. We know that there's been a very, very heavy snowfall over the last US winter and also in Europe as well, and as we just reported on this show, sea ice levels are up in Canada. In the Canadian government's official report, the current sea ice levels have returned to levels they had back in 2004, so that's a big uptick in sea ice levels if you look at the graph.

Interestingly, the graph presented—the overall report by the Canadian government—fits very much with the widespread global warming scenario, which is just so common now, even to the point that recently *Apple News* banned a particular news reporting service from their platform because they started to report something other than the global warming story. The reason for their removal from the *Apple* platform was that they were presenting science which was out of step with the majority of mainstream science, which is just crazy. This really is an example of these ideas becoming dogma and not science, because in science, you look at all the evidence.

Nyck: This notion of 'you're either with us or against us' is very George W. Bush in 2001, after 9/11: 'Are you with us or against us?' There is that sort of tone, unfortunately, in some of the global climate change debate, and that needs to be looked out for. It's not about us being against, or you being against, or someone being against something. We need to find the actual truth and the complexity of the truth that actually can be seen—what's really going on—and the science that may contradict some of the status quo's directions and opinions, but nevertheless, to take it on board, at least.

Steve: That's right and the dynamics that are at the root of this particular issue from a human consciousness perspective are that there's a regressive search going on at the moment, which is triggered by the fact that our current way of living, our Scientific-

Industrial way of living, clearly is not solving our problems effectively anymore, and so we are looking for different values to live by. The first response in any human transformation process is to look backwards and look for a place when our values did seem to work and life was okay and life was stable, and in this case it is taking us back to what are effectively Agricultural era, Middle Ages kind of values, which are very absolutistic, very black-and-white, and it is either for or against, right or wrong, black and white. That's how the values set worked back then.

That's why we're seeing an upsurge in what people are calling Right-wing fundamentalism and those sorts of things, and the emerging paradigm, which is this humanistic, network-centric paradigm, hasn't really become widespread enough to bed down what the new values are—they are still in the formative stage. What we do know, though, is that this new way of being human that's emerging is very much about being able to take different perspectives on things, and that in itself is deconstructing our Modern Scientific-Industrial science because science was very much about finding the evidence, and then, 'okay, this is the new truth', and that new truth could be superseded next week by more evidence, which gives us another new truth.

Nyck: Even Einstein was superseded.

Steve: Exactly. The difficulty with that is that truth in the new paradigm becomes relative, and so it depends on who you are and where you're standing and how you're looking at something as to what the truth actually is, and that in itself is adding more complexity.

Nyck: And with that, you talk also about this new emergence of this layer—this window that we're talking about which is termed 'Green' in Clare W. Graves's work, Layer 6, the last layer before what he called the "momentous leap" which we talk about on this show, too—that the tendency of people emerging into Layer 6, into that more egalitarian, sharing, community-oriented perspective, is also, in the early stages, the tendency to flatten information out to make sense of very complex systems in fairly linear way at this time.

Steve: Yes, and particularly in the emergent stages of a new paradigm, there's a very strong reaction to the old paradigm. Because the old paradigm doesn't seem to be working anymore, there's a natural backlash against the old ways, and that's playing out at the moment as a desire to pull down hierarchies. This is because under the old paradigm, hierarchies have been dominant and they've been dividing and they've actually got to the point where they're past their usefulness and they're starting to cause damage to society, and so the instinct is that people want to flatten those hierarchies out and return a voice to the people, which is one of the things that comes

from flattening the hierarchy. Instead of just hearing from whoever's on top of the mountain with the loudspeaker, we pull the mountain down and so everybody now has an equal voice.

Nyck: And of course, many of those hierarchies are seen to be, and are likely to be—and we're seeing evidence of—corrupt, and deceiving in the max to a point where they've twisted truth and twisted the economics of the planet, arguably. So it's a good reason that people emerging into this stage actually see it that way.

Steve: Absolutely, and there's usefulness in it, but as with everything, there are pros and cons. One of the difficulties about flattening hierarchies is not all hierarchies are dominant, some hierarchies and nurturing.

Nyck: Hi Mum.

Steve: And so if you're pulling down all the hierarchies, you're also pulling down nurturing hierarchies. This general trend to flatten things out is even being applied to, I mentioned earlier, the Canadian government's report on sea ice, which has just come out. There's a trend chart here which shows the plots for every year going back to about 1968, of sea ice levels, which are up and down, up and down. They've drawn a straight trend line right through all of those data points from 1968 to the present year, and in drawing a flat line right through the middle, they've actually lost the detail of the small slingshot effects which are happening in there. If you disregard the flat line, which is actually in a downward trend, which is fitting with the global warming dogma, if you take that away, then you can see that there are actually little slingshot effects within the sea ice. It's going up and down, it's going up and down. There were some really high sea ice levels around 1973, '78, '83, '93, and again sometime between '93 and '98, then the levels dropped down again, and there's just been a significant uptick. So we went right down to a very low level of sea ice—it looks to be around about 2012-ish—and then since then, there's been a sharp uptick in the sea ice, but again, it's not been a linear thing, it's been in these little slingshots, and the most recent one is going back up to the equivalent of levels in 2004. One of the implications of this, what is effectively dumbing down by flattening things out, is you lose the detail, and within the detail, often you can find causative effects.

Nyck: And I guess that's the thing. We haven't come, or there are only a few people on the planet, it would seem—we're seeking to find where those people are and that's what we allude to here—who are looking at those points that are outside of that flattening trend. What are the lows and the highs that jump back and forth and what do they mean, and what are the influences that may be happening on the planet's climate

and all that is considered in that in those times? That's what we're hoping to expand, is people's consciousness about the very many adaptive and complex factors in this system.

Steve: Yes. I mentioned earlier the impact of climate on Australia's food production, and I just want to quickly talk about a couple of recent articles there.

You mentioned that Australia for the first time is importing wheat. It's the first time in twelve years that our grain production has been down so much that we've had to import wheat. *GrainCorp*, Australia's largest grain handler, has just recorded a \$59 million half-year loss due to drought here in Australia, and particularly grain production in the eastern states due to lack of rainfall. If you think about the big increase we've had in snow and ice in the northern hemisphere during winter—and that wasn't just in North America, but also in Europe where there were very, very significant snowfalls, and some unusual snowfalls in places that don't get snow, like in Greece and in London, for example (<https://www.independent.co.uk/news/world/europe/greece-weather-latest-cold-mediterranean-europe-snow-temperatures-dead-a8719051.html>)—looking at the way that atmospheric water gets locked up in ice and snow, it kind of makes sense that some areas would probably lose rainfall as a result of that, and so we're seeing drought patterns and dry weather which also played out last year in the dryness in California and the forest fires which resulted from that.

This is the nature of our climate. It's a complex, volatile system. It doesn't go on a linear trend, and even while there's record snowfalls happening on one side of the planet, we've got droughts and fires and crop losses from lack of rainfall in other parts of the planet. This is the way it works.

Nyck: You mentioned glyphosate before, and those radical climate changes are also, of course, having an effect on the use of pesticides, the use of fertilisers, all the poisons, you could argue, in our environment for a long time. Agricultural use and many other factors have contributed, of course, to various kind of pests increasing in numbers, and various kinds of diseases. We've got, for example in China, a report from a few days ago of the army worm, which is to "bite China's under pressure food supply within two months as the trade war tariffs limit US crop imports" (<https://www.scmp.com/economy/china-economy/article/3011248/armyworm-bite-chinas-under-pressure-food-supply-within-two>). At the same time, "China has already been forced to slaughter millions of pigs with African swine fever affecting all 31 autonomous regions and provinces within just nine months." All of these, of course, complexify even more, the global food supply and how we grow, what we grow. Glyphosate, of course, is highly challenged around the world now, finally. We've seen a couple of big decisions this year, recently—I think someone was awarded \$2 billion, I believe; in an earlier decision, a guy in the States was awarded about \$250 million—so there is this change now coming in the perspective of things like glyphosate, even to the

point that the USA has reported that *Half of All Children Will Be Autistic by 2025, Warns Senior Research Scientist at MIT* (<http://i2p.com.au/half-of-all-children-will-be-autistic-by-2025-warns-senior-research-scientist-at-mit/>), with evidence pointing to glyphosate toxicity, the overuse of Roundup herbicide on our food, as a prime cause of that.

Steve: Yes, that scientist noted that the side effects of autism closely mimic those of glyphosate toxicity, which is really interesting. I remember an article from a while ago looking at the widespread presence of glyphosate in all sorts of products, even down to women's sanitary products from cotton production. It's just got into everything, it seems.

Nyck: Yes, that's right. You pulled up a report here from 2016—it's only two and a half years old—that the *FDA* in America, the *Federal Drug Administration*, suspended testing for glyphosate residues in food (<https://www.ecowatch.com/fda-suspends-glyphosate-testing-2089751612.html>). So, of course, you've always got that political implication, that political interference occurring in many of these issues where there's so much money involved.

Steve: That's right, resulting from the corporate capture of government, where the influence of those with money over those in power dominates, basically.

Nyck: Yes. We've got all those things to look at. In this region, I said to Steve off-air that I was driving through Myocum yesterday and I saw a man amongst his trees down on the fence line on—not really a rural property, it was more like a tree change property—and he was spraying away without any sort of covering. Clearly he was spraying a sort of herbicide; it was probably glyphosate. It's sold in stores around here, it's sold in *Bunnings* still, and so forth, and you look at that and go, 'well, where is that roundup actually going to end up? On the lowlands where it's already pretty wet?' We mentioned before rain, flooding and so forth, spreading the effects of glyphosate and other chemicals as well. We really don't know what we're doing to our environment, still. We should be clearly having a fairly clear perspective about the influences, but we're only just beginning to get there, hopefully.

Steve: Yes. Going back roughly 20 years, I had a little hobby farm. I was living in Mackay in central Queensland at the time in a bit of a tropical area there, just near the Whitsunday Islands and flying the rescue helicopter. I had a lot of spare time and ended up buying a five-acre plot in amongst some sugarcane farms, and my wife at the time, Simone and I, got into a bit of gardening and cropping. It became apparent really, really quickly how difficult it is just to cope with weeds and grasses and things that you don't want growing around your crops. It's a really, really hard work if you're not going to use

some kind of poison, and we ended up, after doing a lot of investigation, going for a permaculture kind of set up, which I think which was clearly the most effective way of doing it. We bought this five acres that had a few hundred fruit trees and they were planted in a conventional sense, basically monocropping, and it was very, very difficult to deal with the weed and insect issues that monocropping throws up. I think this is going to be part of the longer-term transformation, is that we really need to move away from monocropping and into some of these emerging, amazing forest-based multi-cropping arrangements.

Nyck: Many of you out there may have already heard of syntropic farming, which is modelled on nature, similarly to permaculture. These sorts of new structures of how we grow our food, how we farm, are really coming online, especially in this area. The relocalisation we've talked about here, and that people like Helena Norberg-Hodge and others in this region have been advocating for—the need for relocalisation of our food, and not just our food supply, really, as much as we possibly can—because if climate and political instability and everything else is going to create as many problems as most of us can now likely foresee, we really need to find a deeper way, I would say, of being in community where we actually do the work to construct, as much as we can, an independence from the food supply, the food chain. We're very fortunate in this region to be able to grow almost anything and to have, at this time, a lot of water most of the time, so as much as you can, if you can get into that little vegie garden or grow a few trees in a that organic way where they just come together, then do it.

Steve: It's very interesting to ponder the intelligence behind the process of evolution. When we look at what's going on on the planet at the moment, some of the problems that are arising, and the very, very clear evolutionary trends that are emerging with this new paradigm towards decentralisation and rehabilitation of the village, relocalisation for the sourcing of everything, basically—local food production and all sorts of production—it makes sense from an evolutionary point of view that we are moving in that direction because there's a clear need emerging to move away from the old centralised methods.

Nyck: It's a very strong indication of this movement into this next value system of 'Green', of Layer 6, this relocalisation and seeking to work in community and be together and do things together and create a foundation within your own local networks.

Steve: Yes, and if you're particularly interested in the emerging challenges of food production and food supply, particularly in the light of the possibility of further cold winters which may continue to disrupt food supply as it's currently doing around the

world, then I recommend a podcast called the *Ice Age Farmer* podcast, run by a chap called Christian (<https://www.iceagefarmer.com>). I'm not sure if his other name, but it's very interesting. He seems to have a background in markets that trade food futures and those sorts of things, so he's particularly driven to take note of trends around the world and the implications on food prices and food supply. I'm finding it quite interesting to listen to. It's on *iTunes* and probably other platforms as well.

Just before we finish on this topic, one other thing which has just happened over the weekend which is quite interesting is quite a significant volcanic eruption in Indonesia at Mt. Sinabung, with a strong explosion that occurred and a volcanic plume rising to 50,000 feet, which definitely would have some kind of cooling implications for the area that it impacts. Predictions are that we're going to see an increase in volcanic activity during this period of grand solar minimum, which is just beginning now and probably lasting for about 30 years.

You've been listening to Future Sense, a podcast edited from the radio show of the same name broadcast on BayFM in Byron Bay, Australia, at www.bayfm.org. Future Sense is available on iTunes and SoundCloud.

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