

**MAJOR GENERAL THE HONOURABLE
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**KEYNOTE SPEAKER
FOOD FUTURES CONFERENCE 2018
HOTEL JEN, 159 ROMA STREET, BRISBANE**

TUESDAY, 20 NOVEMBER 2018 – 9.00 AM

HEALTHY SOIL – HEALTHY PEOPLE

Thank you Heather

Ladies and gentlemen

- I would like to recognise the original owners of this land and pay my respect to their elders, past and present. SHANNON
- I applaud the fact that the purpose of your conference this year focuses on food as a core health and social welfare issue, and an indicator of broader social and environmental issues.
- As Australia's National Soil Advocate, I have spent the past several years committed to raising awareness, and doing something about, the degraded state of some 60 per cent of our country's soils, on the basis that it is only by regenerating the health of our soils will we maximise the nutritional value of our food and the cleanliness of our ground water.
- And this has to be done because by and large we are now becoming a grossly obese nation, with all that implies for an already overstretched health budget and the general well-being of our people.
- Perhaps one of the causes of obesity might be in that we tend to eat more, because of decreasing food density and nutrition.
- In doing something about this problem as the Chair of Soils For Life, I am committed to supporting our team of scientists and financial experts in compiling some 24 case studies of farmers who are revolutionising the way we farm in Australia.
- The basic task undertaken by our Soils For Life farmers is to restore, protect and maintain healthy soils, to produce healthier food, healthier animals and by extrapolation, healthier people.
- How are our case study farmers doing this?
- These innovative farmers have studied their landscapes closely, and worked out the secret; namely how to maintain permanent vegetation cover, retain more precious water in their soils – where it does its job - and reduce or, in some cases, even eliminate the use of fossil fuel inputs, chemicals, pesticides and inorganic fertilisers.

EXPLAIN: Haggerty – sheep, wheat

- In so doing, farmers like the Haggertys have successfully scored the healthy landscape trifecta, by integrating the management of their soils (microbial, nutrient and fungal function), their water (the hydrology) and their plants (diversity, rather than monocultures).
- Monocultures mine the soil - diversity enriches it.

- With integrated, regenerative landscape management, farmers store and retain large amounts of soil organic matter, which can remain in those soils for millennia. Indeed, soil carbon levels are a primary indicator of the health of our soils.
- But it is a fact that in our Australian agricultural landscapes, our soil carbon levels have decreased from a healthy 4%-5% at settlement to around 1% today and I suggest this is one reason why we are not maximising the retention of water in the soil.

EXPLAIN: 8:1 ratio

- Carbon, of course, along with microbes, are essential for ***all life***.
- It is carbon that feeds the 7 billion microbes in a handful of healthy soil and it is the microbes that then feed the plants. Lose carbon and you reduce the natural microbial food source.
- And this carbon loss is also what is happening globally. For example:
 - We've degraded almost half of the planet's soils.
 - We've turned 5 billion hectares – or 40% of the land surface – into desert and wasteland.
 - We've polluted most of our great river systems and reduced some of their flows by damming the headwaters, eg the Mekong.
 - In India, sub Sahara Africa, China and the Middle East we are steadily draining aquifers established over geological time, ie tens of thousands of years or more.

EXPLAIN: Impact of green revolution

- You can see why I have a sense of urgency about fixing our soils and doing it soon.
- What we must do is to maximise photosynthesis, that is pulling down CO₂ from the atmosphere by green plants and converting it into carbon, sugars and oxygen. And we must do it quickly, by maximising the area of land under perennial green plant growth, including in our cities. This process also cools the soil, thus reducing the potential for hot fires.

EXPLAIN: Paddock, house, tree, car park

- Our Soils For Life farmers – even those technically in drought – proudly show us paddocks and plantations with full green cover, sometimes up to the knees.
- Once we establish that green cover, we have to keep it there permanently, and hence the need for selected native perennials that grow green in our traditional summer months.

PAUSE

- The produce that comes out of these healthy soils is greatly prized.
- One of our new case studies involves a small farmer who produces such prized beef out of around 140 hectares that you can only eat it at a few very expensive restaurants here, but most is exported to equally prestigious restaurants in the United States.
- He works to a very strict farm assurance scheme, producing pure Australian grass fed beef.
- He fattens his cattle on superb pasture which is also defying the drought conditions in his area. Not one steer will enter his property if there has been a single grain in its feed.
- It would be great if all our beef producers were as assiduous in producing food to such high quality, but here's the problem.

PAUSE

- Evidence is emerging that food which is mass produced on poor quality soils requiring high levels of chemical, pesticide and weed controllers, is leading to health problems in our young people, including allergies.
- I'm sure that many of you are far more versed in the relationship between soil health and human health than I am, but we must quickly and accurately acquire the evidence to demonstrate the facts.
- I also understand the complexities in linking the two – according to Brevik and Sauer's paper for Dickinson State University, "The idea that human health is tied to the soil is not a new one. As far back as circa 1400 BC the Bible depicts Moses as understanding that fertile soil was essential to the well-being of his people".
- They add that "soils and human health studies include investigations into nutrient supply through the food chain and routes of exposure to chemicals and pathogens, but also noting that making strong, scientific connections between soils and human

health can be difficult”.

- My question to you, is that evidence so difficult to find? Later, I will quote an Australian scientist, Dr Maarten Stapper who suggests the science is already there. And we should be worried.
- What we do understand is that there’s no doubt that the quality of the world’s soils is seriously diminished.
- In Australia, around 60% of our agricultural landscape is degraded.
- So what does the term “degraded” mean?
- It means a dramatic loss of nutrients.
- It means only four out of 39 soil types have adequate carbon levels to hold water, and feed microbes.
- It means soil erosion in this country greatly exceeds soil formation – one bad hot windy day and someone’s topsoil simply blows away.
- Salinity is a major problem – partly because the government actually paid farmers to cut down trees post World War 2.
- We see the erosion and excision of about 1 million kilometres of our streams and rivers. EXPLAIN
- The urban creep in our larger cities is seeing even more trees cut down for housing estates (some of them on prime agricultural land).
- We have erratic rainfall, floods, extreme temperatures, droughts and wildfires.
- Added to that is this disturbing statistic – each year around **50% of the rain that does fall on our agricultural landscape, simply evaporates because it cannot get into the soils.** That is 25 times the quantity of water in all our dams.

PAUSE

- At the same time, we are seeing a disturbing rise in the number of young people suffering from allergies and childhood cancers.

- As earlier mentioned, in an interview for Soils For Life, Dr Maarten Stapper, an internationally recognised expert on food and farming expanded on this aspect in an interview for Future Directions International, a strategic research institute I established in Perth nearly 20 years ago.
- Maarten has been studying the relationship between soils, food and health for decades, and has warned that industrially produced fruit and vegetables are robbing our plants of their own protection system and significantly reducing their mineral and antioxidant properties.
- It's ironic that we're being encouraged to eat more plant based foods as an antidote to obesity, and yet Maarten's work shows us that the fruit and veggies we are dutifully consuming may, in some cases, be doing us harm – most specifically, to our children.
- He warns that fruit and vegetables which are mass produced in soils lack the essential link with microbes, and that many of those microbes have been killed by chemicals over the past 60 to 70 years.
- Dr Stapper says foods grown in soils depleted of essential minerals and soil carbon, and treated with chemicals, are lowering our immune systems.
- Our depleted soils mean our food has lower mineral content, lower nutrients like antioxidants and vitamins, and are also likely to have chemical residues and a higher water content.
- As an aside, a recent court case in the United States awarding a school gardener with leukemia millions of dollars because of his constant exposure to glyphosate. This has caused a great deal of comment here about the safety of that chemical.
- I won't get into that argument here, but consider that a completely independent review of the safety of glyphosate simply must be done.
- So we have a combination of elements here which should signal real concerns for those of us who are focused on good agricultural practices and human health.
- I quote Dr Stapper again when he says “a comparison in the United States and England of the nutrition in food tables from the food authorities from the 1940s, compared with today, show **30% to 80% fewer nutrients** in the food and veggies

now than there were in the past”.

- He says that “with the synthetic inputs in the food, body care products and around us, we get an accumulation of chemicals in our bodies”.
- “Those chemicals are stored in cells and they cause inflammation and that inflammation is then like a chronic disease, depending on the organ where the inflammation occurs”.
- The science shows that each generation has ended up with lowered immune systems and more current diseases”.
- He says it’s very easy to see that today’s primary school children have more allergies and skin diseases and also cancers like leukemia, and more of our children are being affected by ill health.
- The question is, is Maarten right?
- I am sure that there are many of you in this audience who have looked closely at the relationship between soils, chemicals, mass production, artificial ripening of fruit and human health, and I’m looking forward to hearing the results of your research.

PAUSE

- I’ve spoken today from a purely Australian viewpoint, but the problems we face with soil health are global and there’s an urgent imperative to lobby the world’s leaders hard to help find solutions.
- At Soils For Life, we know that there ARE solutions to improving degraded soils and thereby we believe, improving food nutrition.
- My job, as Chair of Soils For Life, is to present our comprehensive research tracking over 10 years of regenerative agriculture to the attention of **our** leaders and thereby convince other farmers to follow suit.
- So, I’m pleased to report that some of our political and agricultural leaders get it.

PAUSE

- I recently attended the National Drought Summit convened by the Prime Minister.
- It was an excellent occasion attended by the PM, Premiers, bankers, CSIRO, the NFF, the opposition shadow minister for agriculture and federal/state agricultural department heads.
- The PM made it clear that he not only wanted to ensure that drought aid was being efficiently and quickly delivered, but he also wanted advice on how to help farmers better prepare for the inevitable future droughts.
- I put it to the forum that farmers need to be better supported with knowledge and resources on the ground to get their soil, water, plant and animal assets functioning as an integrated whole, with good, transparent and long term science to back them.
- I suggested a national objective or aim “to restore and maintain the health of Australia’s agricultural landscape through the integrated management of the soil, water and plants”.
- The PM said that he supported such an objective. I raised various other sub-sets to that objective which received considerable approbation, including from Joel Fitzgibbon, various premiers and Bob Katter.

EXPLAIN:

SWP – strategic assets

Farmer – support managing assets

Reconnect urban/rural – gardens – community, school

Refocus science

- I will now be following up post haste with the PM and Premiers.
- A very wise US President, FDR once said – “the nation that destroys its soil, destroys itself.”
- My contribution for what it is worth is – “Save Our Soil – Prosper the Nation”.
- Thank you.