



PURPLE REIGN

A small, tart-tasting fruit long overlooked by foodies and health buffs is about to get its 15 minutes of fame. The Kiwi blackcurrant is being hailed globally as the fat-burning, performance-boosting “superfood” of 2017. But is this trustworthy science or just more hype? Donna-Marie Lever investigates the rise of the little purple berry.

Goeff Heslop’s gnarly fingernails are faintly stained a deep purple hue and his weathered hands are coated with dust and dirt. This is a messy business for a crop and seed farmer.

We’re wandering through exposed paddocks in the punishing Canterbury heat; the air is thick and still, perfect conditions to harvest berry treasure, hidden among hundreds of rows of leafy blackcurrant bushes. A year’s work in the fields hinges on today’s crop and Heslop is excited, not just about what this day will yield, but for the berry’s future – which he reckons is about to burst wide open.

“I’m excited, as much as a person my age can be excited,” he says. “Over the past 15 years, I’ve had my doubts about why we’re doing this. But it’s starting to happen now.”

Heslop, 58, took a punt back in 2001, planting blackcurrants on his family’s farm near Leeston – land that’s been

passed down through the generations for almost a hundred years. “I only have 108 hectares, with 40 hectares in blackcurrants, which is small by cropping standards. But in the early 2000s, blackcurrants were doing well and there was a world shortage.”

The berries are highly risky to grow but can deliver very healthy returns. The decade and a half that followed Heslop’s initial planting has weathered both success and near-failure. “Strong winds just before harvest can see you lose a lot, and frost at flowering time is a big issue here. One year, I lost probably 80 per cent of my crop.”

But Heslop – now chairman of Blackcurrants New Zealand (BCNZ) – believes his persistence is paying off.

A recent story in the UK’s *Telegraph* newspaper proclaimed 2017 as another year in which plant-based diets will explode into the mainstream; on their list of “superfood trends” was New Zealand blackcurrants.

“The last 12 months have seen a rise

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DONNA-MARIE LEVER



Geoff Heslop, Canterbury grower and chairman of Blackcurrants New Zealand: "Our blackcurrants have been proven to have higher anthocyanin levels than others, and it seems to me it's to do with our climate – both here [in Canterbury] and Nelson."

in interest in the muscle recovery and fat-burning benefits of beetroot, thanks to its nitric oxide content," the article states. "Now, blackcurrants – rich in antioxidants known as anthocyanins – are set to take centre stage for similar reasons. University studies have tested New Zealand blackcurrant extract, taken in supplement form for a concentrated dose, and shown it can increase fat loss by up to a third during exercise. It may also dilate the body's blood vessels, resulting in up to 20 per cent increased blood flow, and nutrient and oxygen delivery to cells."

Algae fats, nut oils, chaga mushrooms, watermelon seeds and maqui berries also make the list, but it's the Kiwi blackcurrant endorsement that has the industry here fizzing.

Heslop is a believer and, as the official taster, eats handfuls of fresh blackcurrants hourly during harvest season; he throws freeze-dried ones on his Weet-Bix the rest of the year. He says after many doubts and some tough years, it's heartening to see the UK media finally picking up on our superfood's superior reserves of anthocyanins – the antioxidant-rich compound that gives blackcurrants their deep purple-black colour.

"Our blackcurrants have been proven to have higher anthocyanin levels than others, and it seems to me it's to do with our climate – both here [in Canterbury] and Nelson," says Heslop. But he's a

farmer, not a science man and is cautious when claiming just what this superfruit can and can't do.

"There are lots of people who swear by [blackcurrants]... on the muscle recovery side, or post-operation. In one case, a hip operation, the doctors said the patient healed a lot quicker. There's got to be something to it, and that's coming out in the trials now."

BCNZ's website points to further fruit-powered potential. "Possible health benefits related to anthocyanins are now being investigated, including: cancer prevention, control of diabetes, antimicrobial effects, retarding of the effects of ageing and disease, prevention of memory loss and prevention of loss of motor skills." But these bold statements are scientifically unproven... so far.

BACK AT HESLOP'S farm, the clunky grape harvester picks up speed, violently shaking the bushes on every row to free the blackcurrants from their branches. The haul is then gently tipped into a truck that chugs away down a dirt track. Eager students wanting to earn holiday cash are waiting to hand-pick the sticks and foliage from the harvest. Time is of the essence. A truck is on its way and within hours, the berries will be on the road to a factory in Stoke, near Nelson, where they'll go either straight to the coolstore or be processed on the spot into concentrate for the juice market.

Not all berries are the same. Half of all blackcurrants grown here are tart on the tastebuds and go straight to Frucor, the makers of Ribena. Another big chunk goes to Barker's, the Geraldine-based jam and drink maker. Around 20 per cent are freeze-dried in extract or powder form; 15 per cent are frozen for export and the rest go to biotech company New Zealand Pharmaceuticals. The supplement market for athletes, the health industry and nutraceuticals is still small, but it's predicted emerging science will make this an area of growth.

Unfortunately for the blackcurrant, it hasn't always received such good press. In 2004, two Auckland schoolgirls made headlines worldwide when they ran a science experiment and found ready-to-drink Ribena contained almost no vitamin C, despite its claims. The makers of Ribena at the time, GlaxoSmithKline, faced 15 breaches of the Fair Trading Act after the girls took their findings to the Commerce Commission.

In 2007, the company was fined \$217,500 after admitting it misled customers. In court, GlaxoSmithKline also admitted it may have misled customers in TV ads by saying the blackcurrants in Ribena syrup had four times the vitamin C of oranges. It was a sucker punch that hit the blackcurrant industry hard.

"It was [seen as a] David and Goliath battle, and things have moved on since then," says Heslop. "But yes, the girls had



DORNA-MARIE LEVEN



BETTY

Seventy per cent of the blackcurrant crop is grown in Canterbury, the rest in Nelson. New Zealand produces 8000 tonnes of the fruit each year, half of which goes straight to Frucor, the makers of Ribena.

a valid point.” He’s quick to point out the little berry itself was not at fault. “It came down to the way [the blackcurrant] was handled and it will not happen again. It is processed differently now.”

A few Kiwi growers wound up their businesses after the Ribena exposé, or their berry farms “retired” as their owners did. And New Zealand remains a small player in the global blackcurrant business, accounting for about five per cent of world production. It’s still the largest supplier of blackcurrants in the Southern Hemisphere, however.

Heslop believes blackcurrants arrived in New Zealand during World War I, and he says their health benefits have been talked about for years. Traditional healers used them for conditions such as arthritis, liver disease, kidney stones, gout, inflammation of the mouth, stomach and bowel disorders, lung ailments, fatigue and as a diuretic.

There’s now a small pool of 27 growers here, farming 1400ha of the fruit every year. Seventy per cent of the crop is grown in Canterbury, the rest in the Nelson region. “We produce 8000 tonnes of the fruit every year; Poland does more than 150,000 tonnes. They’re very well organised, and have cheaper access to land and labour.”

What New Zealand has going for it is quality over quantity, says Heslop, a result of the unique varieties able to thrive here. And this is where it gets interesting.



Biochemist and Plant & Food group leader Roger Hurst says the science backs blackcurrants’ superfood status.

ENTER THE SCIENTISTS. Encouraged by the industry and backed with hundreds of thousands of dollars of financial support from Blackcurrants New Zealand, the so-called “super-berry” is now set to become super-official – sort of. Scientists at Plant & Food Research, a government-owned Crown Research Institute, are poised to lodge a “self-substantiated” health claim: a 200-plus page dossier of scientific evidence that’s been years in the making, including at least 10 human clinical studies. The paper, likely

to be finalised within the next six months, will claim, “New Zealand blackcurrant anthocyanins reduce exercise oxidative stress.” (A self-substantiated health claim is a document about a specific food-health relationship backed by scientific evidence, but cannot relate to disease or serious illness.)

In one of the studies, which ran over a five-week period in 2015, blackcurrants were found to reduce oxidative stress by 40 per cent. In another, which involved athletes in the UK, a daily dose of blackcurrant extract taken for a week improved the time it took to cycle 16km by 2.4 per cent, and the distance the riders could sprint at full power was improved by 11 per cent.

Biochemist and Plant & Food science group leader Roger Hurst says the findings so far are quite remarkable. “Does the science throw the berry into the superfood category? Yeah, I think it does. I’m impressed, and I’m a scientist so I’m probably one of the harder people to impress,” he laughs.

A portfolio of evidence has been steadily gathered by Plant & Food, under the radar, for years. With government funding of around \$10 million, its predecessor, HortResearch, carried out two large, long-term studies probing the potential health benefits of several berries, including blueberries and boysenberries. It was during early testing, in 2003, that blackcurrants shot well ahead of other

fruit when it came to findings related to exercise, muscle recovery and inflammation. That led to more funding for exclusive blackcurrant research by Plant & Food, enlisting the help of Japanese scientific counterparts for a project that only wrapped up this year.

“For exercise, we’ve shown blackcurrants regulate oxidative stress,” says Hurst. The studies were done using blackcurrant extract in a powder form, but Hurst points out it doesn’t matter in what form you take the berry, the health benefits are still delivered. “That’s the main focus of the health claim we’re putting together. The berry also modulates the inflammatory pathways. Exercise causes inflammation and there is a regulation of that inflammation.”

As the trials continued, the berry kept on giving. “The immune system is also boosted, so there’s a greater ability to combat infection. We found blackcurrants also positively control or manage the amount of muscle-cell damage and promote tissue repair.”

In other words, there’s evidence New Zealand-grown blackcurrants may reduce muscle damage and aid immunity. The message, says Hurst, is this: “By taking blackcurrants, you can recover faster from exercise, so you can potentially exercise more, and harder.”

The research and findings cover off critical information such as dosage, too. “We know what dose is effective; we’ve done a full dose range. We know what dose is not effective. We know when to take blackcurrants in relation to exercise. There are timings to get the benefits and that relationship is also potentially important.”

What will be available publicly is the minimum effective dose to reap the health benefits: 120mg for an average person weighing 80kg. That’s equal to around 21g of frozen fruit on the scales, or about a quarter cup of berries.

BUT THEN, it starts to become a bit murky, because much of the evidence behind the health claim will remain off-limits to the general public. Hurst says it’s to protect the intellectual property. “We’ve agreed with the industry what we will publish and what we’ll hold back.”

Details are still being finalised on how businesses can use the claim, and Plant & Food says it’s too early to know



Consumer New Zealand chief executive Sue Chetwin: “Consumers should have a healthy scepticism of miracle foods.”

if money will change hands. “If the industry wants to use the claim to promote products, they will need to work with us to get commercial access to research results we’ve compiled.”

The Ministry of Primary Industries told *North & South* consumers need to be assured any health claims made on the labels of New Zealand foods are true. There are several regulations in place and the level of routine government involvement depends on the type of health claim, says senior adviser Donnell Alexander. “MPI has had several discussions with the blackcurrant industry and the scientists who have been researching them for some years. They are aware of the regulatory requirements and the bar is necessarily high for such claims.”

Self-substantiated health claims have been slowly phased in from 2013, and have been in full effect for only the past year. “Once manufacturers notify a self-substantiated food health relationship with FSANZ [Food Standards Australia New Zealand], MPI is able to request the dossier of evidence and evaluate it against the requirements of the nutrition and health claims standard. As the standard is trans-Tasman, those relationships notified in Australia are handled by the appropriate Australian agency,” says Alexander.

There are only three other self-substantiated health claims from New Zealand lodged with FSANZ. The first was made

in 2014 by Zespri, claiming “green kiwi-fruit can contribute to normal bowel function”; the second claim centres around a sports water drink providing faster hydration; and the third is by the New Zealand Health Association (which trades as Sanitarium), claiming a low glycaemic index in foods provides sustained energy.

Australia has taken the lead with 37 notified self-substantiated health claims already, covering everything from stress and healthy libido to claims around digestion and protecting cells from free-radical damage.

But then, a big fat disclaimer highlighted on the FSANZ website – a full handwashing of any legal or moral duty. “FSANZ is not responsible for the content of this list. Publication of the notification by FSANZ does not indicate acceptance, approval or validation of the stated relationship. Please note that general level health claims based on notified food-health relationships may or may not be in the market place.”

SO WHERE DOES that leave us? Confused? Consumer New Zealand chief executive Sue Chetwin is wary about the food industry. “Consumers should have a healthy scepticism of miracle foods and unusual foods. Like goji berries from wherever, suddenly these foods appear and have all these health attributes and I think people need to be sceptical,” she says.

While Chetwin believes regulation of the industry is a good move, she says it may still leave consumers little the wiser and warns there is a danger in the jargon, too. “These businesses will be able to make claims, but an ordinary consumer will not be able to judge whether those claims are correct or not. The [claims] are all full of figures... there are no layman’s terms. Organisations like ours will need to be more aware of it. Maybe we need to be doing more.”

She points out while some superfood claims may not directly harm your health, they may not solve your issues either. Almond milk, for example – “the new miracle milk” – which contains only a low percentage of almonds. “That’s what you actually find [on the label]. Whether drinking it with that percentage will make you unwell, well, it won’t... but it won’t do anything else for you, either.”

Chetwin says there also needs to be

clarity on just who is policing the process.

MPI assures us it does check every dossier against what is required by law. An MPI spokesperson says the ministry is also the enforcement agency and investigates anyone making health claims that don't have the back-up evidence. It's kept busy, by queries from the public and competitors dobbing each other in.

"For the first time, there is now a clear legal framework, so if there is a non-compliant health claim, the ministry will assess and determine the most appropriate action to take," says the spokesperson.

MPI encourages compliance rather than resorting to legal action or prosecution. "Where there is evidence that people don't understand the rules, we focus on reminding them of their responsibilities and offer to help explain the rules and regulations. For people less willing to comply, or who deliberately look for an opportunity to offend, we firstly remind them of the penalties and consequences of their offending before taking further action."

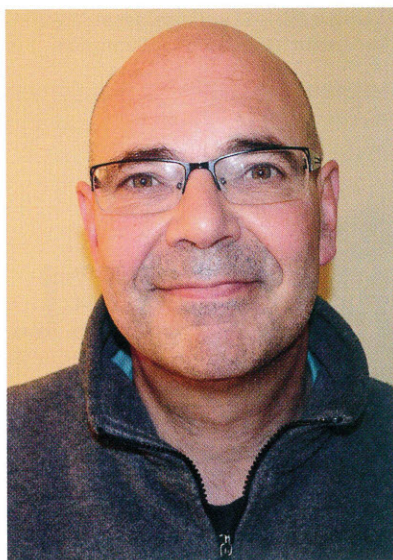
The outcome could be costly, with businesses facing fines of up to \$100,000, and individuals up to \$20,000.

Plant & Food's Roger Hurst thinks the process is not only robust but actually gives consumers more confidence than any alternative. "There's another type of health claim, a nutrient content claim, in which the level has to be proven and labelled. The nutrient can then be linked to a health attribute, for example, 'A certain level of vitamin C will be good for immunity.' These are all pre-approved by FSANZ."

Blackcurrants don't fit that criteria because no pre-approved claim exists for anthocyanins. Hurst thinks that's a good thing, too. "Self-substantiated claims are of a higher level and need a lot more evidence to secure, so theoretically they carry more weight for the credibility of the product and to protect the consumer."

HE'S ALSO SURPRISED it's taken so long for blackcurrants to be picked up internationally and says his science is very different to the superfood fads that are nothing more than passing trends.

"I've seen the frenzy and hype before, but I've rarely seen quality science that comes behind it. That's why we're excited – we have the science. It's not all



Mark Willems, a professor of exercise physiology at the University of Chichester: "I think we could see a battle of the berries."

published yet and that's why we're working with the industry around the health claims. Blackcurrants clearly have some unique characteristics other fruits don't have and we're unpicking those through the science."

Plant & Food's blackcurrant science is backed up by UK research. Mark Willems, a professor of exercise physiology at the University of Chichester, first got involved with New Zealand blackcurrants when a colleague met a Kiwi woman who was making a blackcurrant supplement powder.

"She was keen to get university evidence for her company's product, so was shopping around universities," he says. "But the cost of the research made it a non-starter. We're in a situation where we can take some risk, and we don't need to go for fully economic projects."

Willems launched a series of studies and research using a blackcurrant supplement. His work with cyclists and runners showed taking it can increase fat oxidation, reduce lactic acid levels and enhance blood flow during and after exercise, suggesting benefits for athletes in a range of sports. However, his research also shows blackcurrants don't work on everyone. "Our response rate is now about 80 per cent, so they don't always work, which is normal."

Willems says trial conditions don't always mimic real life, either. "The scientific findings are obtained under con-

trolled conditions, different to normal people's lives. We try to keep as close to normal as possible; for example, it's common in sports nutrition to test people after an overnight fast, but athletes are not going to exercise after an overnight fast, so we allow them breakfast a few hours before training."

Although Willems is impressed, he stops short of calling blackcurrants a superfood. "We don't use the term, but it is performing well. When you compare some of its effects with other berries, it's very good for you, probably because most people are anthocyanin-deficient. We have yet to measure general health over a long period of time – six months or more – so we can see what the health parameters are, like blood pressure and blood work. We want to see if they show any beneficial effects."

He's also keen to see clinical trials on health benefits beyond those being carried out in relation to exercise, muscle stress and inflammation. "My wife is using blackcurrant [powder] to reduce menopausal symptoms – and it works for her." That's anecdotal only, but he'd like to see further research.

"It fits into the growing awareness around eating healthy, functional foods. It's not only blackcurrants; there's wide interest in all berries' health benefits. I think we could see a battle of the berries... The New Zealand blackcurrant could do well."

Willems and his team plan 10 further clinical trials on New Zealand blackcurrants over the next four to five years. Research by Plant & Food is also ongoing and local scientists hope once the health claims become official, this scientific stamp of approval will also generate more money for growers and exporters. Hurst says the work will probably be used to create blackcurrant-derived products based around the proven exercise-recovery health claim.

Willems agrees but thinks Kiwi growers will need to move quickly, as other countries will close in on the science.

"It doesn't matter where the blackcurrant comes from as long as you extract the right amount of what's in it. For a health product made from English blackcurrants, for instance, you'd [have to process] more of them to get the same benefits. The advantage with New Zealand blackcurrants is that they're naturally rich in anthocyanins." +