Ag & Vet Weekly

Friday November 8, 2019

All the news on ASX-listed agriculture and veterinary companies

Dr Boreham's Crucible: Nanollose

By TIM BOREHAM

ASX code: NC6

Market cap: $5.4 million; **Share price:** 7.2 cents; **Shares on issue:** 74,999,993

Chief executive officer: Alfie Germano

Board*: Dr Wayne Best (executive chairman), Mr Germano, Winton Willesee, Terence Walsh, Heidi Beatty.
***** Ms Beatty replaced Gary Cass in July this year

Financials (September quarter 2019): revenue nil, cash outflows $514,000, cash of $600,000*****, estimated current quarter outflows $517,000.

***** A Federal Research and Development Tax Incentive of $462,000 is expected in November

Identifiable major holders: Suzanne Margaret Cass (Cass family trust) 6.86%, Dr Wayne Best (Wayne and Debra family trust) 7.36%, Jason McLaurin 7.36%, Azalea Family Holdings (Britt and Winton Willesee family trust) 7.36%, John Moursounidis (Moursounidis family trust 7.36%).

To most folk, the fermentation process is redolent of wine and beer making, or perhaps one of those trendy probiotic-heavy health foods such as kimchi.

Before chatting with 'waste to wearables' outfit Nanollose, little did we know the industrial process can be used to convert plant-based materials to fibres for use in clothing and other applications.

The Nanollose process involves microbes (bacteria) naturally fermenting liquid waste from effluents and food industry by-products into cellulose, a hidden building block of the textiles industry (fibres, fabric and clothing).

The company's initial focus is on substituting the $US16 billion ($23 billion) a year rayon market.

Rayon is not exactly a greenie's friend, as it is produced by pulping trees and treating the matter with harmful dioxin-producing chemicals.

Polyester, nylon and acrylic textiles are also on the nose because they are based on petrochemicals, while cotton growing is water and pesticide intensive.

As for rayon, an awful lot of trees are culled for the latest fashion statement: the company estimates 150 million per year, not all of them sourced from plantations.

"The sad reality is that demand for wood pulp is much bigger than supply," says executive chairman Dr Wayne Best.

Nanollose's key product is a viscose-rayon fibre called Nullarbor, derived from waste from the agricultural, food and beverage industries.

As well as hinting at the company's Perth domicile, nullarbor aptly means 'no trees'.

Dr Best adds that while textiles are synonymous with clothes, the massive industry also covers other uses such as carpet in luxury cars and home furnishings.

"We also see lots of applications other than fibre," Dr Best says. "But over the last 12 months we have narrowed our focus on fibre technologies."

Waste to wearables

The Nanollose process stems from a chance discovery in 2006 by winemaker and ag scientist Gary Cass, who discovered that a bad batch of wine had fermented and dried into a leather-like material.

That's serendipity!

Mr Cass assigned his intellectual property to Nanollose, which was formed in 2014. The company listed in October 18, 2017 after raising $5 million at 20 cents apiece.

Mr Cass departed the board in July this year but remained chief scientific officer until he ceded this role in late October.

An organic chemist, Dr Best co-founded the contract drug research consultancy Epichem, now owned by listed doggie cancer drug developer Pharmaust.

Dr Best ran Epichem for 15 years before stepping down in April last year.

Nanollose CEO Alfie Germano is a seasoned textiles executive, having held senior positions at GAP Inc, VF Corp, Liz Claiborne Inc, Fila Inc and Carter's Inc.

In a nod to the fermentation process, in March 2015 the company paraded a 'beer dress' at an Italian fashion expo. The frock did not resemble a jug of Peroni but its design - described by catwalk watchers as "fun, flouncy and bouncy" - was inspired by a flowering hop plant.

Last October, Nanollose produced its first garment from Nullarbor as a proof-of-concept exercise, using 3-D techniques.

The company dubs this event as a key milestone in its short history, as it "demonstrated to the world the potential and feasibility of turning waste into pristine eco-friendly fibres and textiles".

In April 2019, Nanollose completed pilot scale production of rayon fibre for non-woven fabrics, as used in single-use items such as wipes, nappies, surgical gowns and feminine hygiene products.

The company has an exclusive tie up with Europe's Codi Group, which makes seven billion wipes a year.

"Non-woven is a great space because everyone uses wipes daily," Mr Germano says.

Initially at least, the company is targeting higher-margin products such as premium garments and wipes.

The latter sector is also stratified, in that a woman indulging in a $300 facial will pay more for a wipe than a younger girl buying cheap lippie at Target.

The company cites the combined woven and non-woven markets at $US44 billion ($A64 billion), forecast to grow to $US98 billion by 2026.

"The tech is the same. All we want to do is produce the fibre and what the customers do with it is up to them," Dr Best says.

Who's got a lovely bunch of coconut waste?

Nanollose's business has been predicated on alliances with Indonesian and Chinese partners to supply the raw material of coconut water, which should not be confused with coconut milk, which is derived from simmering the white meat of a mature coconut.

While not exactly a waste product - bottles of coconut water do a roaring trade in trendy 'wellness' stores - it's an ideal feedstock because of its high sugar content.

Indonesia's PT Supra Natami Utama (PT SNU) is one of the world's biggest makers of coconut food, beverages and cosmetics. The second supplier is China's Hainan Yeguo.

Having showed the viability of its technique, Nanollose is engaging with manufacturers to produce tree-free rayon fibres commercially.

While the company expects coconut water to be an initial feedstock, other waste products from the food and beverage industries can be used.

Molasses are ideal because of their high sugar content, while whey (a lactose byproduct of cheese making) is another potential feedstock.

Once again, these products have other commercial uses but are plentiful.

Human health

Nanollose also has a research project with Murdoch University to explore developing a microbial cellulose scaffold for human and animal tissue engineering.

“However, in line with Nanollose’s ‘fibre first’ strategy, the company does not intent to extend any more resources on this project at this point in time,” the company says.

But it hasn’t ruled out a commercial partnership with another party to fund the research. The company is also interested in the burgeoning artificial meat market.

Finances and performance

Like so many ‘pre revenue’ tech plays, Nanollose is living a somewhat hand-to-mouth existence with $600,000 in the bank as at the end of September.

But with a $462,000 research and development tax rebate due in November, management reckons it has enough spendoolies to persist with its programs.

“Our burn rate is not huge and probably will be coming down,” Dr Best says.

“At some point we will have to do a capital raise but we aren’t panicking. We know people will give us money when the time is right.”

Nanollose shares have traded as high as 35 cents a share (in October 2017) and as low as 4.3 cents (late June this year).

No crying over spilt boards

Nanollose investors opted overwhelmingly against delivering a remuneration report second ‘strike’ at its October 24 meeting. Last year, 61 percent of voters rejected the rem report, easily falling foul of the 25 percent threshold.

Ahead of this year's meeting, the company resolved to reduce Dr Best's and Mr Germano's base cash remuneration to $165,000 from $225,000, previously.

Instead, shareholders agreed on a package of one million performance rights each to Dr Best and Mr Germano, with vesting dependent on hurdles including one or more commercialization deals and the company exceeding $1 million of annual revenue.

That seemed to do the trick.

Dr Boreham's diagnosis:

Nanollose is tackling a huge environmental concern, notably clothing waste that ends up in landfill having often been worn just once.

The emergence of 'fast fashion' has been exacerbated by platforms such as Instagram, which prohibit fashionistas from taking more than one selfie in the same clothes.

But rag traders and other users are seeking alternatives to the "environmentally burdensome" plant-based cotton and rayon and the company is confident of striking a supply deal with one or more "marquee" fashion brands.

"We are confident the fashion industry will have a voracious appetite for this thing," Dr Best says.

He adds the company needs to stay focused: "we have more ideas than we can possibly commercialize at any one time."

While the rag trade is keen to flaunt its eco-credentials in the Greta Thunberg era, the cut-throat nature of the business means there could be a limit as to how widely they will open their Prada purses to pay for green friendly inputs.

Dr Best says: "We won't replace trees in our lifetime. But if we got to one or two percent of the market - or even half a percent - shareholders should be very happy."

Mr Germano says: "If we could replace trees we would be front cover and centrefold of Forbes magazine."

Or perhaps even the business mag's global billionaires' rich list.

Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. His fermentation experience is confined to knock-out home brew (the bottles exploded).