



nanollose™

ASX:NC6

A LEADING BIOTECHNOLOGY COMPANY
COMMERCIALISING SCALABLE TECHNOLOGY
TO CREATE FIBRES AND FABRICS WITH
MINIMAL ENVIRONMENTAL IMPACT

CORPORATE SNAPSHOT

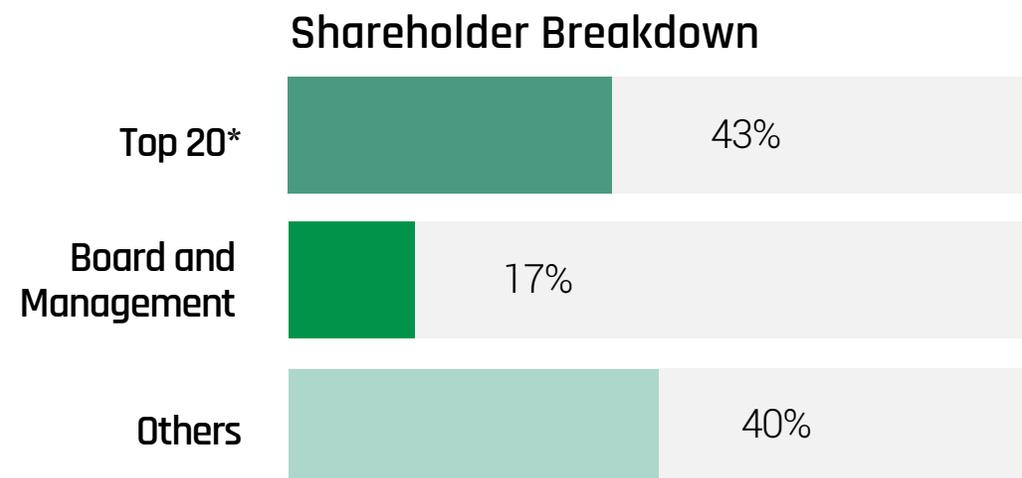


Nanollose Limited (ASX:NC6) is a leading biotechnology company, commercialising scalable technology to create fibres and fabrics with minimal environmental impact.

The Company has developed Tree-Free nullarbor™ fibre for clothing and textiles and nufolium™ for nonwoven fibre applications, including personal wipes. Nanollose is currently working with leading international industrial partners, to accelerate the development and commercialisation of its Tree-Free fibres.

| Capital Structure | |
|-------------------------------------|--------------------|
| ASX Code | NC6 |
| Shares on Issue | 105m |
| Options | 45.7m ¹ |
| Share Price (31 July 2020) | A\$0.052 |
| Market Capitalisation | A\$5.46m |
| Cash (30 June 2020) | ~A\$835,000 |
| Number of shareholders 24 July 2020 | 565 |

¹Varying options with exercise price \$0.10 - \$0.40



* Excluding Board and Management

INVESTMENT HIGHLIGHTS



- ◇ Nanollose is **developing a scalable revolutionary technology to create Tree-Free fibres and fabrics**, with minimal environmental impact.
- ◇ **Collaboration Agreement with Grasim Industries (India), a world leader in rayon production**, to accelerate development and commercialisation of Nanollose's Tree-Free fibres.
- ◇ **Collaboration agreement with Codi Group, Europe's leading producer of personal wipes**, to develop a viable consumer wipe product, using Nanollose's Tree-Free nufolium™ nonwoven fibre.
- ◇ **Nanollose's Tree-Free fibres are environmentally friendly** and do not result in deforestation, do not require the wood-pulping process, pesticides or fertilisers, and have only a modest demand for energy, land and water.
- ◇ **First wearable garment made from nullarbor™ Tree-Free Rayon** using standard industrial equipment - first garment ever made using a plant-free rayon fibre.
- ◇ **First mover advantage in the Rayon market, a high growth market** forecasted to grow from US\$14.4b in 2019, to US\$20.9b by 2024, at a CAGR of 7.8%.
- ◇ **The personal wipes market is a high growth market** estimated to grow to US\$23b by 2025, at a CAGR of 5.6%.
- ◇ **Leading fashion companies globally have already started to shift towards sustainability** with Nike, Zara, Prada, H&M and many others, moving towards environmentally friendly practises, creating a significant opportunity for Nanollose.
- ◇ Nanollose has **strong interest from major international clothing brands** and super users of cellulose based fibres.
- ◇ **Clean capital structure** providing a significant opportunity at this level.

BOARD OF DIRECTORS



Dr Wayne Best
Executive Chairman

- 40 years' experience in organic chemistry and biotechnology, Fellow of the RACI, and Graduate of the Australian Institute of Company Directors.
- PhD from UWA, 2 years at Imperial College (UK), a year at ANU (Canberra), followed by 4 years at chemical giant ICI.
- 10 years at the Chemistry Centre (WA) then founded and managed Epichem, a globally competitive contract R&D company, for 14 years.



Alfie Germano
CEO / Managing Director

- 30-years in the textile industry, with 24 years in the garment industry leading large-scale global product development, sourcing and retail operations.
- Formerly held VP and Director positions held at GAP Inc, VF Corporation, Liz Claiborne Inc, Fila Inc and Carter's Inc.
- Fashion Design and Textile Science Diploma from the Bentley College of Technical and Further Education in Perth, Western Australia.



Heidi Beatty
Non-Executive Director

- 20 years' experience developing consumer and health care products, and founder of Crown Abbey Ltd, a leading product development consultancy.
- Chemistry degree from the University of York (UK), and worked with Johnson & Johnson for 10 years, developed wet wipes and Johnson's Baby®.
- In 2010 joined PDI Healthcare, where she led teams to launch surface disinfectants and skin antiseptics products.



Terence Walsh
Non-Executive Director

- Former commercial lawyer and manager with over 20 years of experience in project development, mining and general commercial law.
- Initially worked with leading law firms in Perth & Sydney before moving to in-house Counsel with Rio Tinto Ltd and then Hancock Prospecting Pty Ltd.



Winton Willesee
Non-Executive Director

- Experienced company director, with significant experience in strategy, development, corporate governance, IPO's, M&A & corporate finance.
- Qualifications in Commerce, Economics and Finance, Accounting, Applied Finance and Investment, Applied Corporate Governance and Education.
- Fellow of the Financial Services Institute of Australasia, the Governance Institute of Australia and the Institute of Chartered Secretaries and Administrators, Graduate of the Australian Institute of Company Directors and a Member of CPA Australia.

AN INDUSTRY PROBLEM

150 million trees are chopped down annually to make cellulose-based fibres for textiles, a figure that is set to double in the next decade, making it commercially, environmentally and socially unsustainable.

CURRENT FIBRES ARE FACING ENVIRONMENTAL & COMMERCIAL PRESSURES



POLYESTER - NYLON - ACRYLIC

- Non-biodegradable
- Made from non-renewable petroleum resources
- Production processes are energy intensive



COTTON

- Requires large amounts of pesticides, water and land to grow, and is also a seasonal crop.
- 10,000 litres of water to produce 1kg of cotton, meaning it takes about 2,700 litres to make a cotton t-shirt.
- Cotton covers 2.5% of the world's cultivated land but uses 10-16% of the world's pesticides, more than any other single major crop.



RAYON

- Wood-pulping process is energy intensive, polluting and results in deforestation.

THE NANOLLOSE SOLUTION



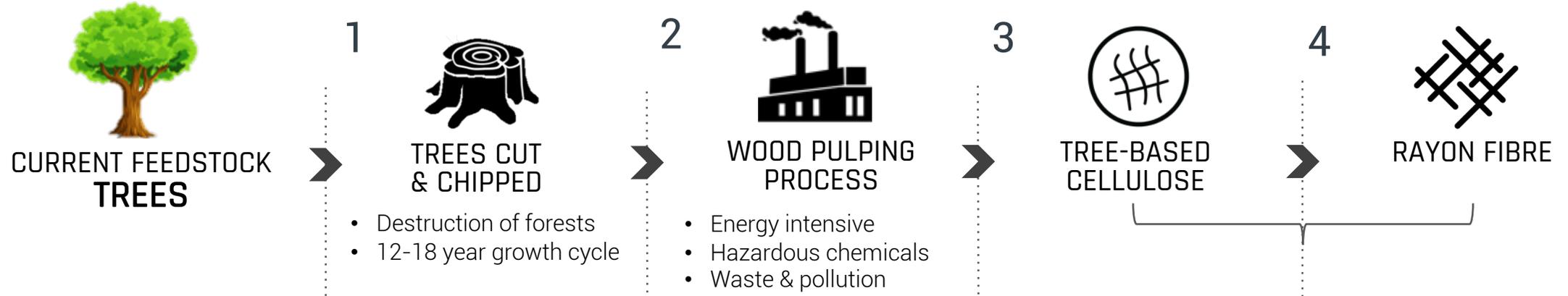
A WORLD FIRST TECHNOLOGY THAT TURNS LIQUID WASTE INTO RAYON FIBRES WITH MINIMAL ENVIRONMENTAL IMPACT

- Scalable and environmentally friendly technology to create Tree-Free fibres and fabrics with minimal environmental impact.
- Directly addresses the industry problem as Nanollose's fibres are made from 100% natural materials, and produced from waste streams from food, beverage and agricultural industries, meaning that it is 100% Tree-Free, hence doesn't require an intensive pulping process.



PRODUCTION – RAYON VS TREE-FREE RAYON

TRADITIONAL RAYON - PRODUCTION PROCESS



NANOLLOSE TREE-FREE FIBRE - PRODUCTION PROCESS



No Deforestation

No Wood Pulping Process

Low Energy Use

No Pesticides

Low Water Use

Low Use of Land

ADVANTAGES OF TREE-FREE RAYON



No Deforestation

Nanollose's fibres are made from a 100% natural, Tree-Free feedstock from waste.



No Wood Pulping Process

Nanollose's fibres don't require an energy and chemical intensive pulping process.



Low Energy Use

As no wood pulping is required for Nanollose's production process, energy usage is significantly lower than alternatives.



No Pesticides

Pesticides are not used in Nanollose's production process as feedstock is from waste.



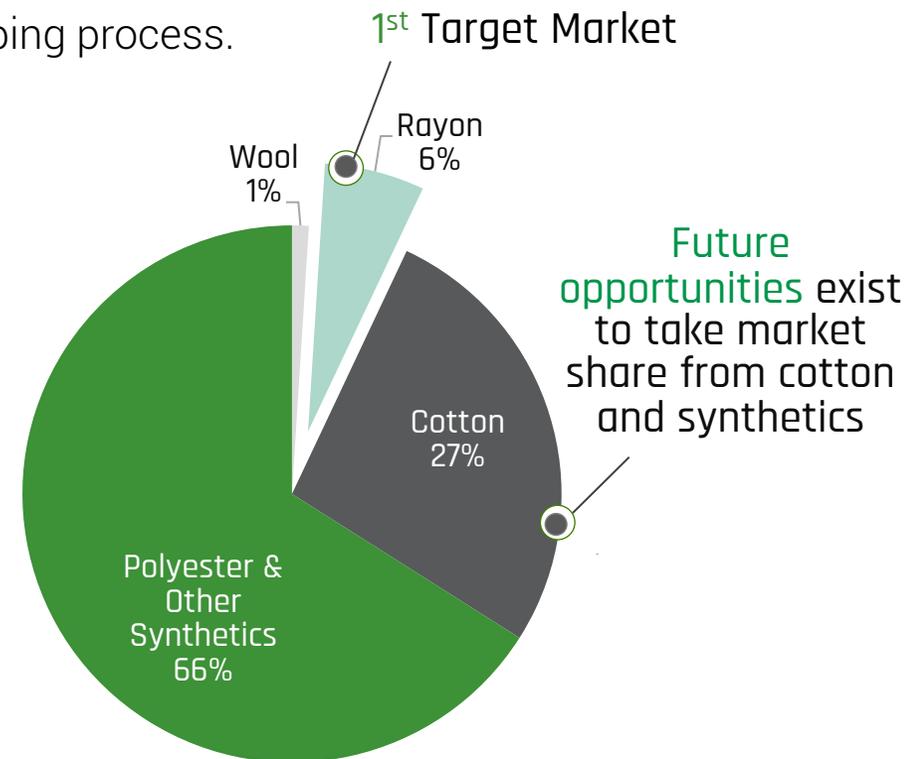
Low Water Use

Low water use is required for the production of Nanollose's fibres.



Low Use of Land

Nanollose's fermentation process does not require light or agricultural land.





FERMENTATION OF ORGANIC WASTE

TREE-FREE CELLULOSE

FIBRE & YARN

CLOTHING

TECHNOLOGY AND PROCESS **VALIDATED**

The first wearable garment using nullarbor™ Tree-Free rayon was manufactured using standard industrial equipment, **validating Nanollose's waste-to-wear technology.**



- ◇ Nanollose has **developed Tree-Free nullarbor™ fibre, a type of Rayon** - a well established fibre currently derived from trees.
- ◇ **Collaboration Agreement with Grasim Industries (India)**, a world leading Rayon manufacturer.
- ◇ **First wearable garment made using nullarbor™** Tree-Free Rayon with standard industrial equipment - first garment ever made using a plant-free rayon fibre.
- ◇ **Looks identical to conventional tree-based Rayon** and is 100% biodegradable.
- ◇ **Retrofitted into today's textile and clothing production processes**, with a proven ability to withstand current industrial manufacturing.
- ◇ The commercialisation of nullarbor™ fibre is **the Company's first priority**.

THE MARKET - RAYON

24%

Grasim's market share of Rayon production

\$20.9b

Rayon market forecasted to reach US \$20.9 billion by 2024.

7.8%

Global CAGR for the period 2019– 2024.

Rayon is used to make everything from textiles, personal hygiene products to tyres.



PERSONAL WIPES

- ◇ **Nanollose also developed nufolium™ for nonwoven fibre applications**, including personal wipes, a high growth market.
- ◇ **Collaboration Agreement with Grasim Industries**, also extends to the commercialisation of nufolium™ fibres.
- ◇ **Collaboration agreement with Codi Group**, Europe's leading producer of personal wipes, to develop a viable consumer wipe product, using Nanollose's Tree-Free nufolium™ nonwoven fibre.
- ◇ **The personal wipes market is high growth**, estimated to grow to US\$23.1b by 2025, at a CAGR of 5.6%.
- ◇ A key driver for this market is **growing concerns regarding personal hygiene**.

Sources: <https://www.businesswire.com/news/home/20200528005284/en/COVID-19-Outlook-Impact--Wet-Tissue-Wipes-Market>
<https://www.prnewswire.com/news-releases/personal-care-wipes-market-growth-to-propel-based-on-increasing-hygiene-awareness-among-consumers-till-2025--million-insights-301058378.html>

THE MARKET - PERSONAL WIPES

34%

Of growth will originate from Europe

\$23.1b

Personal care wipe market forecasted to reach US \$23.1 billion by 2023.

5.6%

Global CAGR for the period 2019 – 2025.

7.6%

European CAGR for the period 2019 – 2025.



THE SHIFT HAS ALREADY BEGUN

- ◆ **Thirty fashion companies**, including Chanel, Adidas and H&M have joined an initiative spearheaded by Kering Chief François-Henri Pinault, which focused on climate, biodiversity and oceans.
- ◆ Zara has announced that all of its collections will be made from **100% sustainable fabrics before 2025**.
- ◆ Prada signed a £42.9 million loan with banking group Crédit Agricole, with repayment terms conditional to meeting key **targets around the sustainability** of its products and operations.
- ◆ Nike unveiled a comprehensive **“Move to Zero”** sustainability plan, building upon existing efforts to fight climate change.
- ◆ H&M has a goal to use **only sustainably sourced materials** by 2030.

“The metrics we use to measure the health of our businesses should also include the health of our planet. All of us have to double-down on sustainability, reducing environmental impacts, and increasing social justice.”

Rick Ridgeway VP of Public Engagement, Patagonia

GRASIM INDUSTRIES COLLABORATION AGREEMENT



- ◇ **Collaboration Agreement announced 30 January 2020 with Grasim Industries Limited (Grasim)**, a company belonging to global conglomerate, Aditya Birla Group, one of the world's largest Rayon manufacturers, to exclusively develop, and commercialise Nanollose's Tree-Free fibres including nullarbor™ and nufolium™.
- ◇ **The Collaboration Agreement provides Nanollose with a world class and globally recognised industrial partner** with the ability to accelerate development and commercialisation.
- ◇ **A key step in Nanollose's strategy** to commercialise the Company's Tree-Free fibres.
- ◇ An industrial fibre manufacturer was the **last missing link needed** to complete Nanollose's waste to textile value chain.
- ◇ Despite the temporary lock down periods in India, **Nanollose has continued to advance the Collaboration Agreement with Grasim**, by liaising with their R&D team and exchanging important technical information.

Grasim Industries Limited, is the flagship company of US\$48.3 Billion Aditya Birla Group, and ranks amongst the top publicly listed companies in India, and a leading global producer of manmade cellulosic fibres for apparel, textiles and non-woven applications.

CODI GROUP COLLABORATION AGREEMENT

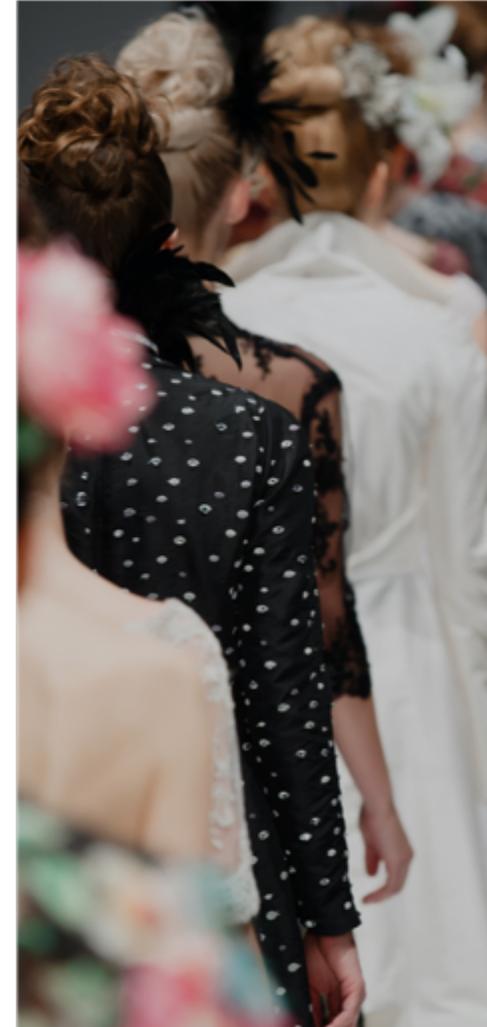


- ◇ **Collaboration Agreement with Codi Group, Europe's leading producer of personal wipes**, to develop a viable consumer wipe product, using Nanollose's Tree-Free nufolium™ nonwoven fibre.
- ◇ Codi's extensive technical and commercial understanding, along with its ability to prototype and test products, will assist Nanollose in commercialising its Tree-Free rayon fibre for this market sector.
- ◇ Clients include multinational brands, European retailers, distributors and institutional parties, with the group **distributing products to more than 40 countries.**
- ◇ Codi Group owns **high value proprietary technical information** relating to the production, marketing and distribution of consumer wipes.
- ◇ Once Nanollose's fibre has undergone further testing for the production of wipes and has demonstrated its ability to achieve commercial viability in this market, both parties will seek to enter into a formal agreement with the specific intention to form a long-term business relationship.

**Codi produces more than 7 billion wipes in
around 150 million consumer packages per year.**

STRONG INTERNATIONAL INTEREST

- ◆ Brands, retailers and manufacturers **urgently seek sustainable alternatives** to rayon and cotton.
- ◆ Nanollose has **significant interest** from major international clothing brands and super users of cellulose-based fibres.
- ◆ The Company is **currently in discussions** with a number of these groups and plans to work towards manufacturing / collaboration agreements.
- ◆ Nanollose is also working with Codi Group to establish a long-term commercialization path for Nanollose's nonwoven fibre for **applications in personal wipes.**



PEER LANDSCAPE



| | Company | Uses existing fibre making infrastructure | Creates new cellulose from waste | Technology Concept | Stage of Development | Country | Founded | Listed | Last funding round |
|--|--------------------------|---|----------------------------------|---|--|-----------|---------|--------|--------------------|
| | Nanollose | ✓ | ✓ | Production of tree-free cellulose & rayon | Working with world's largest rayon maker | Australia | 2014 | ✓ | \$720k (2020) |
| | Circular systems | ✓ | ✗ | Extracting cellulose from waste | Pilot plant | USA | 2017 | ✗ | US\$1.6m (2020) |
| | Orange Fiber | ✓ | ✗ | Rayon from orange peel cellulose | Plan to build 60 tonnes/year plant | Italy | 2014 | ✗ | €650k (2020) |
| | Renewcell | ✓ | ✗ | Recycled cellulose | Production capacity 7,000 tonnes/year | Sweden | 2012 | ✗ | US\$5m (2019) |
| | Evrnu | ✓ | ✗ | Recycled cellulose | Development an testing quantities | USA | 2014 | ✗ | US\$9m (2019) |
| | Tyton Biosciences | ✓ | ✗ | Recycled cellulose & polyester | Pilot plant | USA | 2011 | ✗ | US\$8m (2020) |
| | Infinited Fiber | ✗ | ✗ | Recycled cellulose with new rayon process | Pilot plant | Finland | 2016 | ✗ | US\$3.7 (2019) |
| | Bolt Threads | ✗ | ✗ | Production of new synthetic "spider silk" | Pilot plant in progress | USA | 2009 | ✗ | US\$124m (2018) |
| | Spinnova | ✗ | ✗ | New eco-friendly cellulose fibre spinning process | Pilot plant | Finland | 2014 | ✗ | US\$12m (2019) |

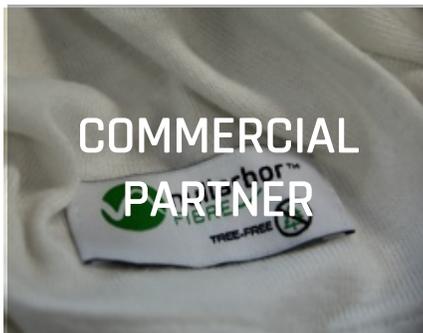
COMMERCIALISATION STRATEGY



- ✓ **Commence Scale-up of Microbial Cellulose with Nanollose's Chinese partner**
- ✓ **Commence Pilot Production of Nullarbor fibre with an industrial partner**
 - Scale production from kg to tonne quantities
 - Begin steps to produce and deliver 2-5 tonnes per month for continued commercialisation



- ✓ **Collaboration Agreement with Grasim Industries Limited to:**
 - Enhance technology optimisation
 - Refine manufacturing costs
 - Broaden product development
 - Accelerate commercialisation
- ✓ **Commence nullarbor fibre offerings, sales and marketing to brands and super users**
 - Nanollose is currently in discussions regarding licensing intellectual property, processes and trademarks.



- ... **Sign exclusive supply agreements**
 - With globally renowned designers and high tier apparel Brands
- ... **Sign exclusive development agreements with globally renowned fabric mills**
- ... **Commence nullarbor fibre offerings to other high value textile sectors**
 - Potential revenue streams include purchase of Nanollose fibre, license of trademarks and product collaborations.

NEWSFLOW CATALYSTS

Q3 2020
Q4 2020

COMMERCIAL PRODUCTION TRIALS

- Completion of production of 1 tonne of microbial cellulose (MC)
- Shipment of 1 tonne of MC to Grasim Industries R&D facility
- Deliver larger commercial amounts of MC to Grasim for production trials
- Optimise and produce first commercial amounts of nullarbor fibre for commercial offerings
- Commence product trials with leading global brands from fibre
- Commence product trials in nonwoven sector

Q4 2020
Q1 2021

SECURE DEVELOPMENT AGREEMENTS WITH CLOTHING BRANDS

- Sign supply agreements with 2 to 4 well-known global clothing brands, targeting high end European designers and outdoor/active wear brands

GROWTH STRATEGY – STAGE 1

- Formalise a partner to accelerate MC supply and scale (the “New Forest”)
- Commence initial design of a plant and investigate future funding options

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The indicative 2020 timetable is a guide of Nanollose's intentions at the date of this presentation only. Nanollose reserves the right to vary the timetable at its discretion, and further notes that the above timings are subject to change due to circumstances outside of its control. It is Nanollose intention that if successful in securing a fibre purchasing agreement the company would expect payment for its products, however, Nanollose notes there is no guarantee that this type of partnership will eventuate within the time frame set out in the 2020 roadmap, or at all.

CONTACT



Alfie Germano

CEO / Managing Director
Nanollose Limited
alfie.germano@nanollose.com
+61 (0) 411 244 477



Jane Morgan

Investor Relations Advisor
Jane Morgan Management
jm@janemorganmanagement.com.au
+61 (0) 405 555 618



APPENDIX

THE AUSTRALIAN 
Monday, July 6, 2020 | Today's Paper | Mind Games

Hi Jane  *plus*

≡ All sections HOME THE NATION WORLD BUSINESS COMMENTARY SPORT ARTS All 🔍 Search

HOME / LIFE / STYLE    

It's a natural fit

The COVID-19 pandemic is likely to shift the fashion industry further toward sustainability.

By GLYNIS TRAILL-NASH



<https://www.theaustralian.com.au/life/style/its-a-natural-fit/news-story/09cfec4a7ff691b18cea59ad9d09a77a>

EDITORS' PICK | 11,675 views | Apr 13, 2020, 12:02pm EDT

To Satisfy Skyrocketing Demand For Wet Wipes Amid COVID-19, This Under 30 Alum Repurposed His Factory's Core Business



Igor Bosilkovski Senior Contributor ©

Under 30



Mauricio Menache at his Phoenix-based wet wipes factory MAURICIO MENACHE

<https://www.forbes.com/sites/igorbosilkovski/2020/04/13/to-satisfy-skyrocketing-demand-for-wet-wipes-amid-covid-19-this-under-30-alum-repurposed-his-factorys-core-business/#27ef68f97648>

BRIEF HISTORY OF FIBRE PRODUCTION



POLYESTER / NYLON / ACRYLIC – Discovered in 1926

- 1941 – British scientists patented polyethylene terephthalate and produced Terylene, the first synthetic fibre.
- 1946 – DuPont purchased legal rights and in 1950 produced the polyester fibre, Dacron, and in 1952, Mylar.
- 1951 – Polyester was introduced to the public as a miracle fabric that could be worn, pulled, and washed without wear.
- 1970 – The polyester industry continued to expand rapidly until the 1970s.



COTTON – Use in fibres since 5000 BC

- 1990 – Pioneers in the US and Turkey started to create markets for organic cotton.
- 1995 – More sustainable blends were introduced including cotton/bamboo.
- 2006 – Growth in organic cotton use increase significantly due to concerns about brand and image.
- 2020 – No truly sustainable cotton-based solution exists to the large amounts of pesticides, water and land use.



RAYON – Developed in 1893

- 1893 – The first rayon (viscose) patent was granted
- 1906 – Viscose enters the market as “artificial silk”
- 1935 – Industrial applications of rayon emerged, substituting cotton fibres in industrial applications.
- 1972 – Lyocel, a form of rayon was developed, consisting of cellulose fibre made from dissolving pulp.
- 1980 – The fibre was developed further as 'Tencel' by Courtaulds Fibres in Coventry, UK.
- 2000 – Tencel was sold to Lenzing AG, who maintained the brand name Tencel.
- 2017 – The Tencel brand remains most widely known lyocell fibre producer throughout the world.