



ORITAIN
PROVING ORIGIN, PROTECTING REPUTATIONS



Ec. Gabriela Castro-Fontoura
Ing. Alim. Cecilia Bianchi

4th September 2024

Who We Are

Who is Oritain global?

Oritain was born out of a need to protect one of the planet's most precious commodities: our agricultural products. Over the last 15 years we have successfully expanded to support a growing list of clients worldwide across more than 20 different product categories.

Oritain was founded in 2008 at the University of Otago by Dr Helen Darling and Professor Russell Frew, an advisor to the UN and a world-leading expert in using analytical chemistry to trace the origin of products.

From our humble beginnings in New Zealand, Oritain has become a global leader in applying forensic and data science to verify the origin of products and raw materials.

We verify truth. We prove origin. We protect reputations.



We have over **240 staff** across the globe with offices in London, Washington, Zug, Auckland and Dunedin, with Singapore opening this year, putting us within arms-reach of our clients.



Delivering services to **20+** industries



Helping clients in **20+** countries



What We Do

Traceability like no other

Oritain's unique auditing methodology combines forensic science and data to detect naturally occurring elements in a product or raw material. Soil composition, climate, altitude, precipitation and other environmental factors all reveal the details of a product's origin – which we call the **Origin Fingerprint**.

Once an Origin Fingerprint has been created, it can be used to audit products throughout the supply chain – to clearly differentiate the legitimate from the fraudulent. Unlike other traceability methods, it is highly resistant to being tampered with, replicated or destroyed.

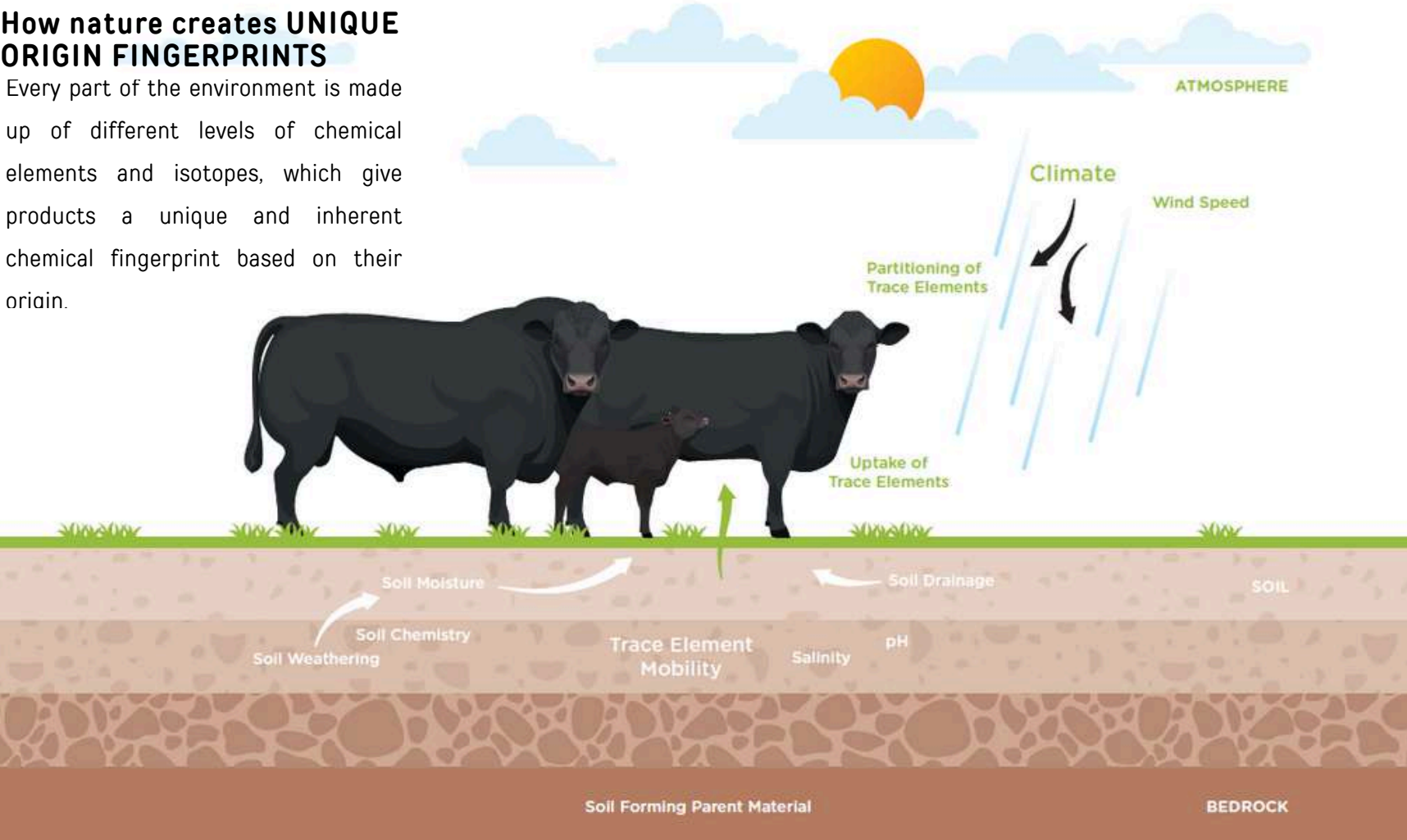
While the move to sustainable practice is driven by a desire to reduce our impact on the world, we can't do this without knowing the certainty of our actions. Through Oritain's scientific verification, brands are empowered to make changes across their supply chain to operate more sustainably, and to pass those assurances on to their customers.



How it Works

How nature creates UNIQUE ORIGIN FINGERPRINTS

Every part of the environment is made up of different levels of chemical elements and isotopes, which give products a unique and inherent chemical fingerprint based on their origin.



Our Science

Isotopes and trace elements

Depending on the product or material being verified, we employ one or both of our key sample testing methodologies. Trace elements and stable isotopes are two chemical characteristics of a sample, which are influenced by its environment.

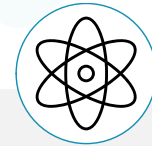
Each of these testing methods is unique in their benefits and limitations, however both can be used effectively to develop a unique origin fingerprint.

The type of sample being tested and the aims of each unique commercial agreement (origin resolution etc.) dictate which of the testing techniques is most suitable.



Trace Elements

- A trace element (in analytical chemistry) is an element whose average concentration is less than 100 parts per million.
- Plants uptake the trace elements from the soil, where the main source is in the underlying rocks
- Trace elements are extremely sensitive to change, resulting in accuracy to a scale of meters
- Best used in products with minimal chemical processing



Isotope Ratios

- Isotopes are atoms with the same number of protons and electrons but with a different number of neutrons
- Isotope ratios have strong links to the environment and are affected by different environmental factors; Oritain uses ratios of five light stable isotopes influenced by different factors
- Less sensitive than trace elements and don't vary over small distance, but less susceptible to chemical and physical processing



Verifiable Origin Fingerprint



Protecting Supply Chain Integrity

The promotion of your traceable supply chain starts with ensuring you are sufficiently protected. To underpin the presented brand promotion exercise, Oritain can support your company through the delivery of a comprehensive testing programme, with samples collected and tested for origin, across the value chain.



Our Process

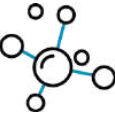
Origin verification, THROUGHOUT the supply chain



Tests the actual product
Oritain test the actual product, not the packaging, ensuring integrity of the product no matter what happens to the label / packaging.



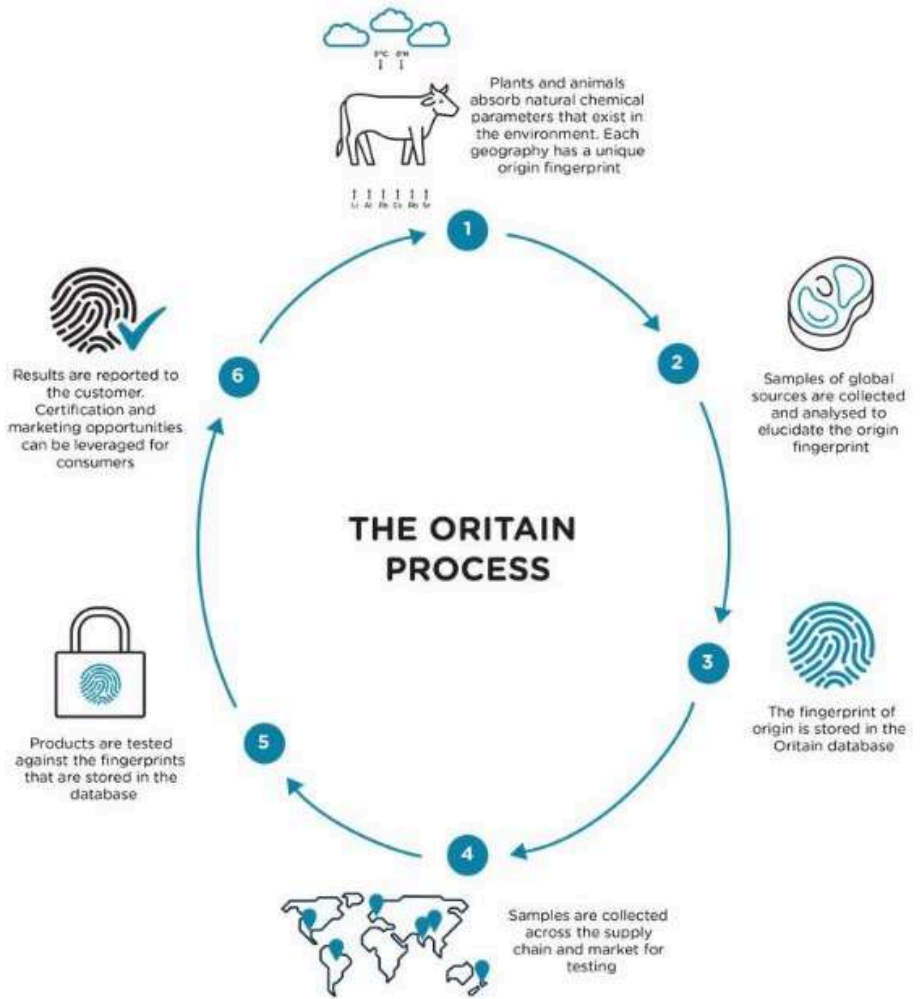
Works across many industries and supply chains
Oritain can work across several products and across different supply chains.



Test throughout the supply chain
Integrates seamlessly into existing supply chain infrastructure.



Accurate in detecting fraud
Oritain's forensic science is highly robust and accurate – based on proven techniques from the criminal forensic field.



Differences from other technologies



Blockchain

Blockchain provides permanent records of transactions but it requires all supply chain partners to cooperate. It cannot detect fraud, is difficult to scale up, and is only as good as the information supplied.



Tagging

Tagging allows for examination of the product at any stage in the supply chain, but it requires that marker be added for each supplier / processor the brand wants to identify. It requires a huge amount of cooperation, cannot mark risk products and is susceptible to human error.



DNA

Can be used as a proxy for origin only when all the genetic variability within the origin is captured and the genetics are not present in other environments. It is weakened by the fact that genetic matter is mobile, does not function for diluted material and cannot detect counterfeits (genetically identical).



Microbiome Tracing

Process examines the dust products collected from their environments to extract the microbiome signature / data. This is then matched against a microbiome database. Microbiome signatures are highly volatile, often yielding high rates of type I and type II errors.



Stable Isotope Ratio Analysis

Relies upon isotopes as used in criminal investigation. Chemical fingerprint is extracted directly from the target material. The process can be done at any point in the supply chain, is highly accurate and impossible to influence. It cannot track intermediaries.



Product Portfolio



Agriculture (read meat, pork, dairy, leather)



Horticulture (fruit, vegetables, wine, grains)



Bulk commodities (cocoa, coffee, palm fruit)



Fibre (cotton, wool, cashmere, mohair)



Minerals and critical materials (cobalt, polysilicon – in development)



Country of origin



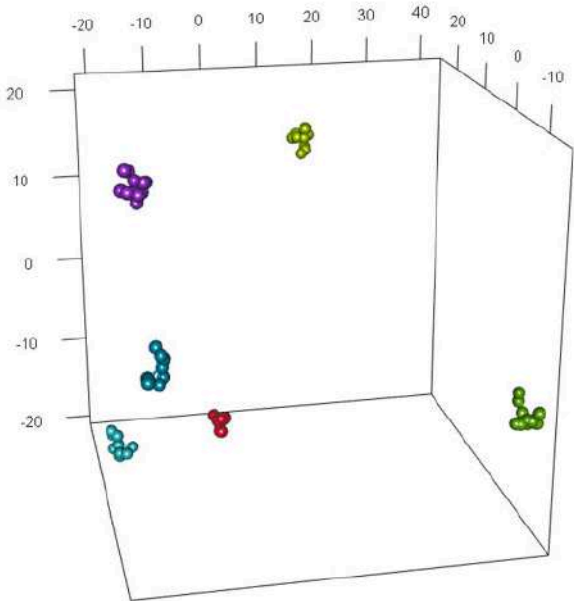
Region / sub-region of origin



Farm of origin



Bespoke databases



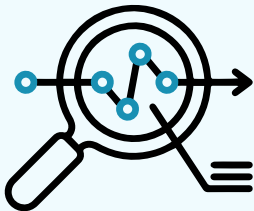
Benefits



Protect Guard the story

Fraud and adulteration in your supply chains can be detrimental to your products reputation and ability to generate returns.

An auditing programme with Oritain can help you to detect fraud, investigate the cause and ultimately protect your brand.



Promote Tell the story

Leverage the traceability programme and use it to differentiate your brand in market through a comprehensive brand promotion plan.

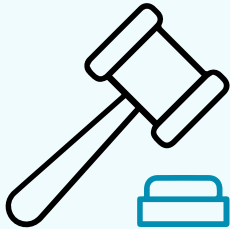
Use of the Trustmark on pack to tell the origin story you have just written, in a compelling manner.



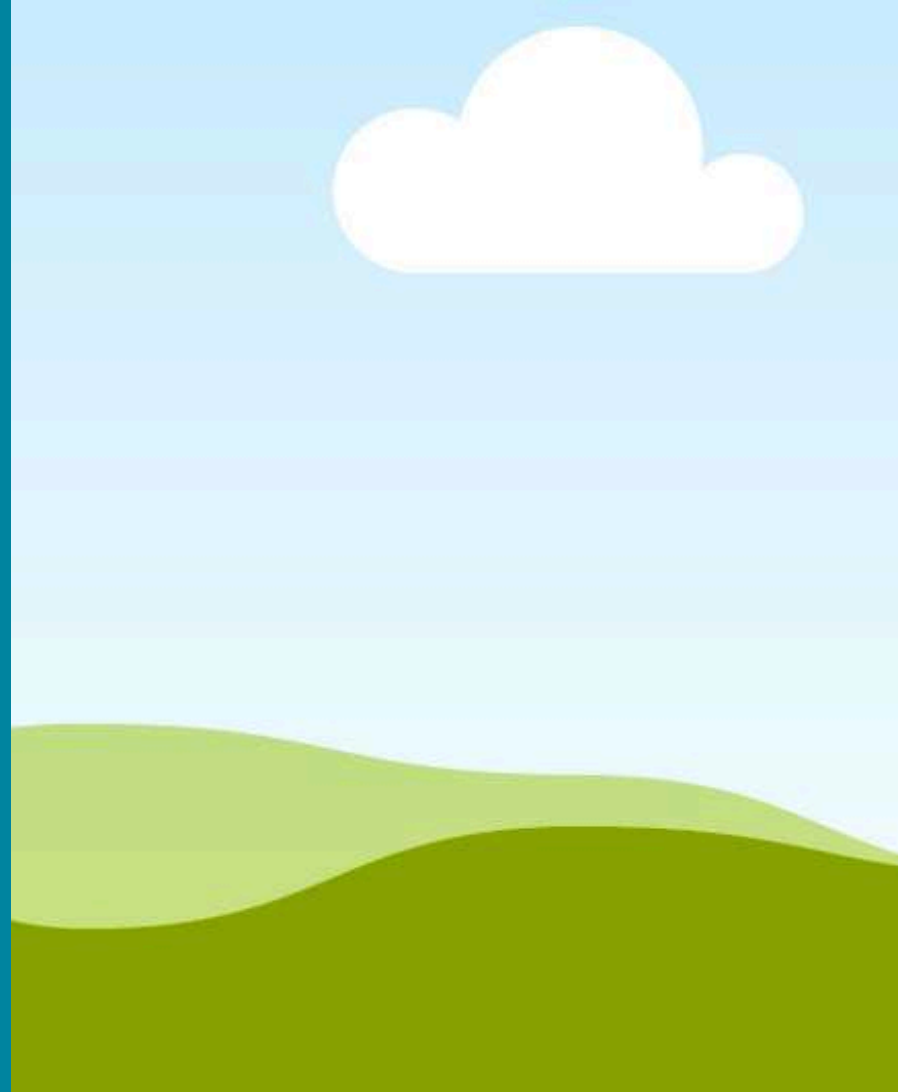
Comply Regulatory compliance

Complying with the ever-increasing regulation is crucial to keeping all important market access open.

Proving provenance through Oritains technology gives authorities full confidence in the origin claims you're making on your products.



Credentials



Testimonial



Client Testimonial

Silver fern farms



100% MADE OF NEW ZEALAND

As New Zealand's leading marketer, processor and exporter of premium lamb, beef and venison, Silver Fern Farms has partnered with Oritain to scientifically verify the origin of their products.

Their packaging utilises the Oritain Trustmark – assure consumers of the safety, quality and provenance of the product they are purchasing.

“Oritain have created brand opportunities by using their science to underpin authenticity and focus on brand values including provenance”
– Silver Fern Farms



Client Testimonials

A2 milk company



A2 Milk Company wanted to position their infant milk powder as the choice for discerning 'super mums'.

They utilised Oritain to:

- Provide third party validation and trust
- Reinforce premium brand credentials to support higher sale prices
- Validate the provenance and source quality of ingredients

NESCAFÉ ORIGENS DO BRASIL



Nescafé wanted to reassure customers of the authenticity and origin of their special 'Origens do Brasil' coffee brand.

They utilised Oritain to:

- Communicate their origin story to consumers
- Strengthen the brand's ESG commitments
- Protect the livelihoods of farmers
- Increase supply chain knowledge and transparency



Client Testimonials

THE URUGUAYAN WOOL ASSOCIATION



The Secretariado Uruguayo de la Lana (SUL) wanted to help protect Uruguay's valuable wool industry, ensuring its quality and continued environmental welfare.

They utilised Oritain to:

- Verify the origin of Uruguayan wool with scientific accuracy
- Protect their main export revenue from wool and wool products
- Support their commitment to environmental policies

Cerrado mineiro coffee



Cerrado Mineiro wanted to protect and promote the coffee beans from this significant growing region in the state of Minas Gerais in southeastern Brazil.

They utilised Oritain to:


















































- Verify the authenticity of the region's beans
- Protect the unique quality of Cerrado Mineiro beans
- Enhance the reputation of growers

"We believe Oritain will strengthen our reputation as a region that has origin verification and traceability. It will increase our credibility in the marketplace. There is no question that we want to grow with Oritain."

**- Juliano Tarabel, Executive Director,
Cerrado Coffee Growers Federation**



We Have the Credentials to Deliver





Contact Gabriela Castro-Fontoura to find out more
gcastro-fontoura@oritain.com
+598 97998654

Oritain.com
Info@oritain.com



Oritain
@Oritain

UNITED STATES +1 (202) 998-8235
1201 I Street, N.W., 8th Floor, Suite 850,
Washington, DC 20005,

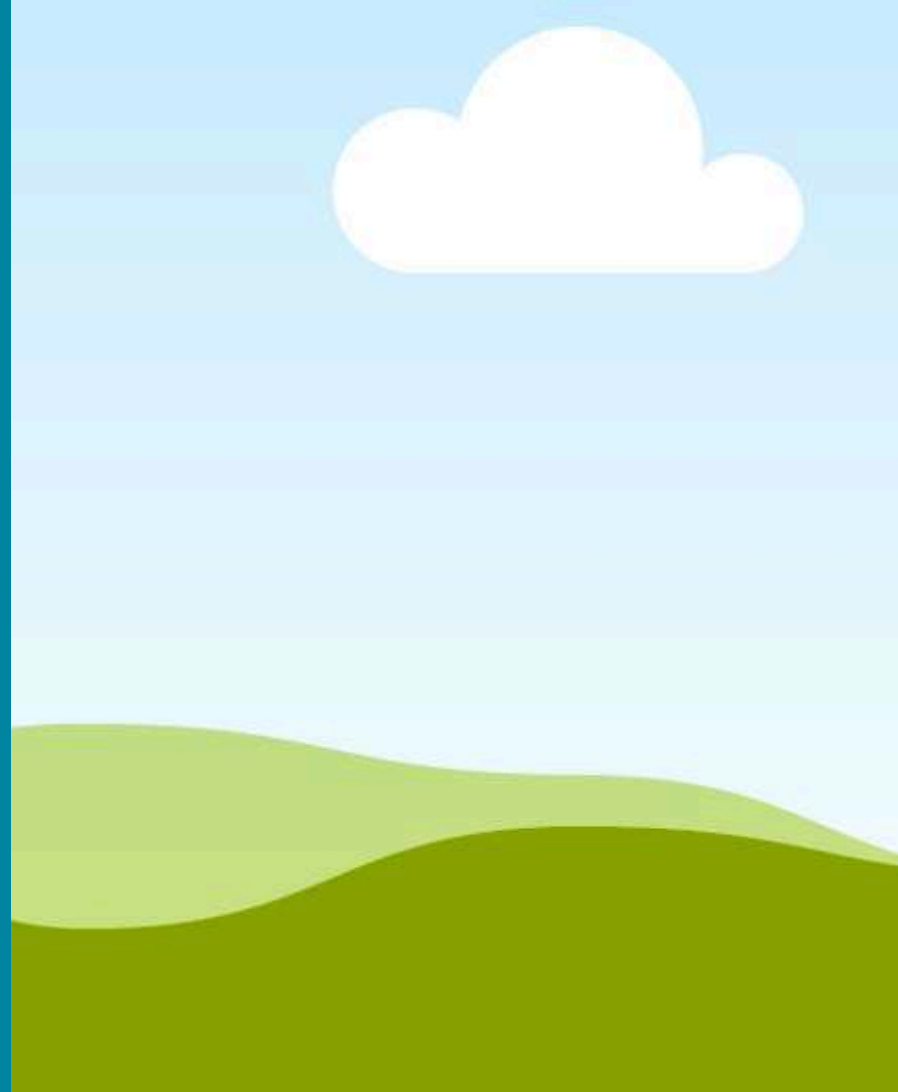
UNITED KINGDOM +44 (0)20 3176 9007
3rd Floor, 2-7 Clerkenwell Green,
London, EC1R 0DE, United Kingdom

NEW ZEALAND +64 3 489 0086
167 High Street, Dunedin,
Otago 9016

SWITZERLAND +44 (0)20 3176 9007
Zählerweg 5, 6300 Zug

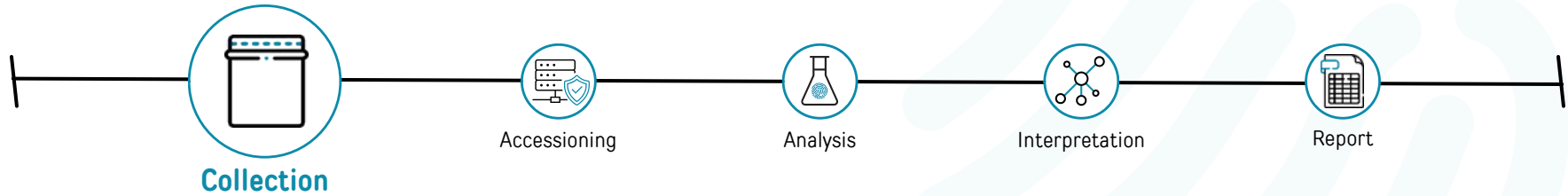


SERVICE DELIVERY



Delivery – Verification Events

We follow a standard process for all our origin verification programmes, ensuring quality is maintained regardless of the commodity being investigated.



Collection

Sampling: Samples are collected by the customer, Oritain or a contracted third party, in accordance with our Standard Operating procedures (SOPs). Each agent is given in-depth training before they are permitted to collect samples, regardless of which organisation they work for.

Recording: The samples are collected by the agent and a suite of key metadata recorded on a chain of custody form including composition, brand, geolocation data and environmental data (if necessary).

Sample: H32447 ✕

Collection photos – 4 total

Download
Share

Customer Unique ID Art-51623

An Analyst's comment

An inconclusive result is a result that did not meet the requirements for reporting against the "chemical fingerprint" of the origin. This may occur in instances where a sample did not meet chemical data quality specifications despite being reanalysed. This may occur when a material of the sample is present that is outside of capability and impacts the chemical fingerprint of the audit sample. Samples J209935 and J209931 exhibited chemical fingerprints outside of the entire population of analysed cotton in Oritain's database. Re-analysis and further investigation indicated potential presence of non-conforming composition that is outside of Oritain's capability to assess for Origin Verification purposes.

Sample details

Brand	Treated Fabric
Composition	Scott Huggins
Colour	Bureau Veritas
Season	Scott Huggins
Size	Bureau Veritas
Specification	Scott Huggins
Style #	Bureau Veritas
Subtype	Scott Huggins

Audit details

Audit Completion Date	Treated Fabric
Collection Country	Bureau Veritas
Collection date	Scott Huggins
Collection point	Bureau Veritas
Parent Sample ID	Scott Huggins
Child Sample ID(s)	Bureau Veritas
Status	Scott Huggins
Vendor Name	Bureau Veritas

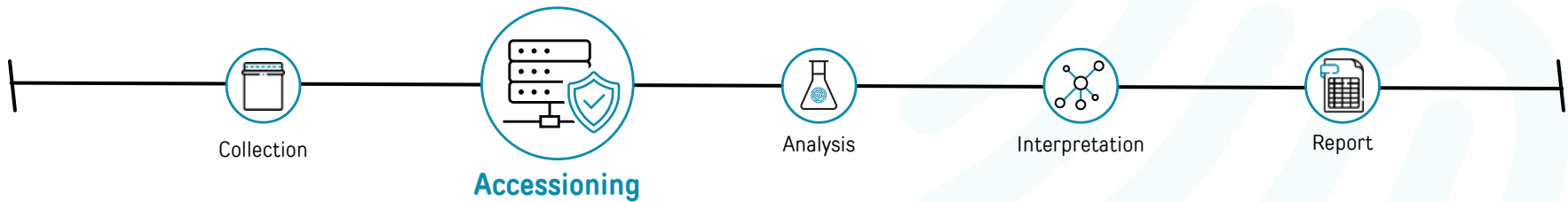
Origin details

Claimed Origin	Treated Fabric
Claimed Origin Evidence	Bureau Veritas
Claimed Origin Result	Scott Huggins
Claimed Origin Type	Bureau Veritas
Claimed Origin Source	Scott Huggins
High Risk Result	Bureau Veritas
Manufacturing Country	Scott Huggins
Origin Country	Bureau Veritas
Origin Region	Scott Huggins



Delivery – Verification Events

We follow a standard process for all our origin verification programmes, ensuring quality is maintained regardless of the commodity being investigated.



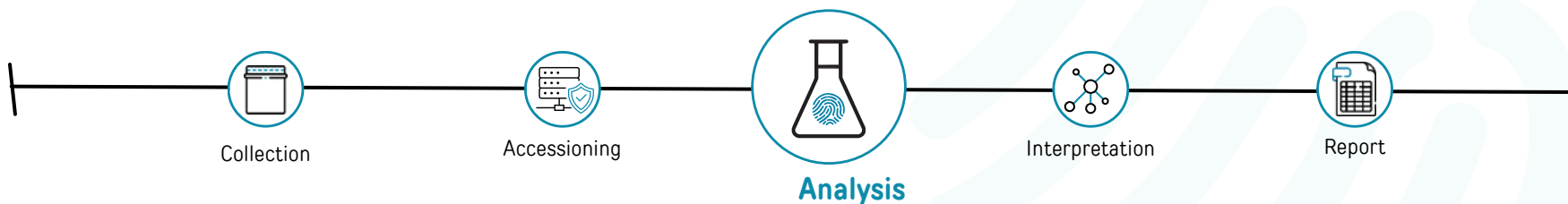
Accessioning

- Shipment:** Samples are shipped from the collection location to an Oritain transitional facility, either at our HQ in Dunedin, New Zealand, or one of our laboratory partners in the US or EU.
- Registration:** Upon arrival at the transitional facility, samples are assigned a unique ID and both the sample and its associated metadata are registered in the Oritain Operating Environment.



Delivery – Verification Events

We follow a standard process for all our origin verification programmes, ensuring quality is maintained regardless of the commodity being investigated.



Analysis

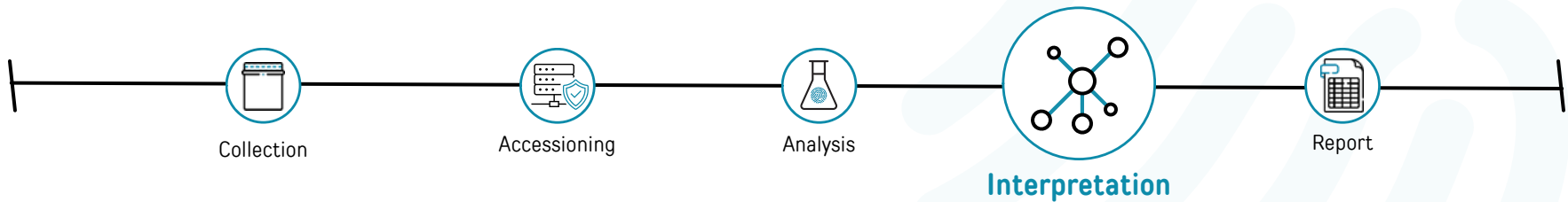
5. **Processing:** Samples are moved from sample reception to our laboratory where they are prepared and analysed. Either stable isotope ratio analysis or trace element analysis will be performed, depending on which technique was used to develop the origin fingerprint for the commodity of interest.

6. **Data Release:** The suitability of output data is assessed in accordance with strict quality control guidelines. Any anomalies are investigated and understood before the release of raw data to our interpretation technicians.



Delivery – Verification Events

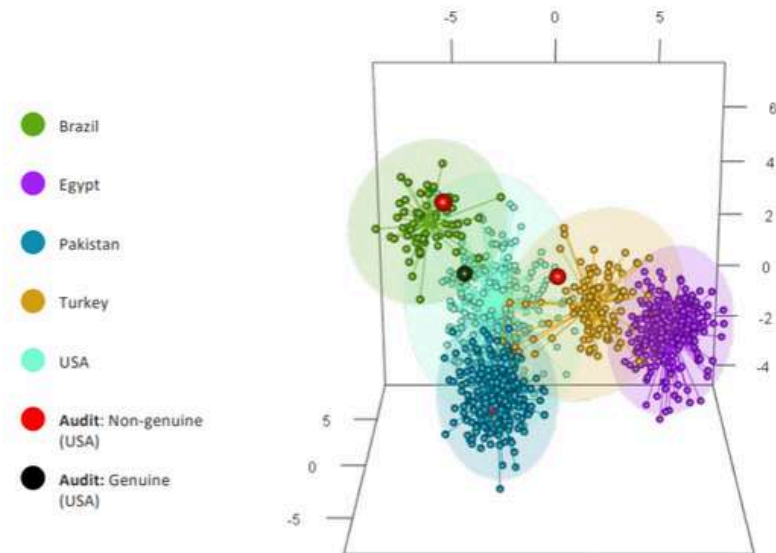
We follow a standard process for all our origin verification programmes, ensuring quality is maintained regardless of the commodity being investigated.



Interpretation

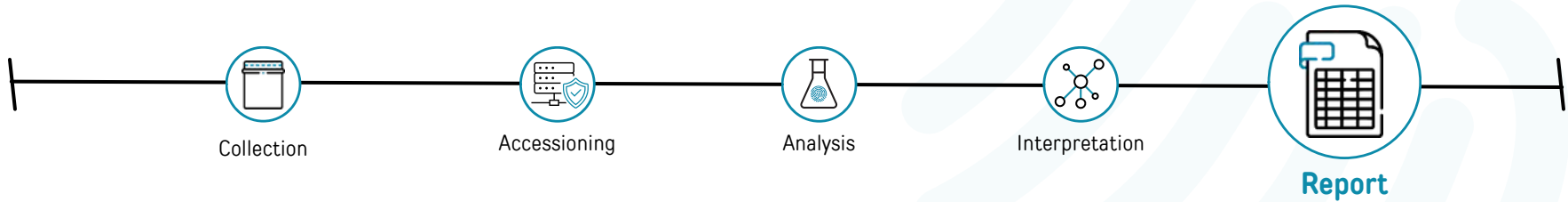
7. Statistical Interpretation: The raw data is meaningless without our reference databases, which for core products such as cotton, cover over 95% of global production. The raw data is further processed and run against the relevant commodity database developed and continuously maintained by Oritain. We do this to answer two key questions:

- **Is sample X, consistent with the claimed origin Y?**
- **If sample X isn't consistent with origin Y, is it consistent with a known risk origin?**



Delivery – Verification Events

We follow a standard process for all our origin verification programmes, ensuring quality is maintained regardless of the commodity being investigated.



Reporting.

8. Reporting of Results: Having been tested against the key origin questions, as defined by the client, the outcomes of our analysis are summarised in a tailored audit report.

For many of our clients this is a unique report for each batch of samples analysed, indicating compliance / non-compliance and sample origin data. However, for others, this is a bi-annual / annual verification certificate, confirming that all samples collected and tested throughout the year were consistent with claimed origin.

Oritain Global Limited
317 High Street
Dunedin 9010
New Zealand
+64 3 488 0086
www.oritain.com
www.oritain.com

Oritain Controlled Document
AR-000001-00040203 - DEM-SV001
Date issued: 28 February 2024
Page 1 of 3

Origin verification report #DEM-SV001

Inconsistent results have been found

Client business name: oritain Demonstration Client
Address: 1 Street, Fown, district, Region, New Zealand
Vendor: Vendor Z
Sampling collection point: site 7
Collection address: 1 Factory Road, Dhaka, Dhaka Division, Bangladesh
Date samples collected: 15 February 2024

Sample type: cotton
Sample sub type: Yarn
Collected by: Third Party Agency
No. of tests reported: 12
Date samples received: 20 February 2024 (NZST)

ORITAIN SAMPLE ID	STYLE NUMBER	SKU NUMBER	SAMPLE DETAILS	COMPOSITION	CLAIMED ORIGIN	AUDIT RESULT	RISK ORIGIN 1	RISK ORIGIN 2	RISK ORIGIN 3
Sample ID 157	Style 35	79	Brand 2 Wow Row	100% Cotton	United States / Brazil	Not Applicable	China Xinjiang: Inconsistent	Uzbekistan: Inconsistent	Turkmenistan: Inconsistent
Sample ID 159	Style 36	80	Brand 2 White	40% Polyester, 40% Cotton, 20% Nylon	India	Consistent	China Xinjiang: Not Applicable	Uzbekistan: Not Applicable	Turkmenistan: Not Applicable
Sample ID 161	Style 37	81	Brand 2 Pattern 5	100% Cotton	Bangladesh	Inconsistent	China Xinjiang: Inconsistent	Uzbekistan: Inconsistent	Turkmenistan: Inconsistent
Sample ID 163	Style 38	82	Brand 2 Greige	100% Cotton	India	Consistent	China Xinjiang: Not Applicable	Uzbekistan: Not Applicable	Turkmenistan: Not Applicable
Sample ID 165	Style 39	83	Brand 1 Black	100% Cotton	Bangladesh	Consistent	China Xinjiang: Not Applicable	Uzbekistan: Not Applicable	Turkmenistan: Not Applicable

