

Thread of Truth

The Power of Digital and Physical Traceability



Why This Matters Now

Regulation is tightening across Europe and the United States. The EU's due diligence laws and the UFLPA now demand verifiable proof of cotton origin. At the same time, global supply chains remain opaque and prone to undocumented blending, substitution and false origin claims. Traceability helps brands identify and mitigate risks in increasingly fragmented supply chains where disruptions can impact sustainability commitments.



Consumers and regulators expect proof, not promises. **CottonConnect** and **Haelixa** have created an integrated solution that links digital chain-of-custody data with physical DNA verification, allowing brands to source cotton with full confidence in its integrity and compliance.

WHAT THE COLLABORATION DELIVERS



Digital transparency

CottonConnect's on-ground programmes and TraceBale platform map every movement from farm group to finished garment.



Double assurance

Digital data and DNA evidence together provide verifiable, audit-ready proof of origin.



Scientific proof

Haelixa applies a natural DNA marker at the gin that survives all processing stages, creating a forensic identity for each batch.

Proven Results >

After a 2023 pilot, CottonConnect, Haelixa and C&A scaled the system across 100+ supply chain partners, tracing over 60 million garments annually. The integration showed combines traceability from farm to retail, highlighting the integration of physical and digital proof.

Proof of authenticity from farm to finished product

Minimal operational change

Recognition of compliant suppliers and farmers

Early detection of mixing or substitution

Reliable evidence for customs and regulators

Benefits Across the Value Chain



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Evidence You Can Defend >

- ✓ Secure digital and forensic records in one platform for audit readiness.
- ✓ DNA testing confirms origin and can indicate blending ratios.
- ✓ Marker approved for organic standards and safe for textiles and food use.

Compliance and Risk Control >



Europe

Due diligence and green claim regulations require verifiable evidence.



United States

UFLPA enforcement demands credible origin proof to avoid shipment detention.



Cost and Return on Investment

Full verification typically costs one to five cents per garment, depending on scale and sampling. Compared with the potential cost of detentions, fines or reputational damage, the system provides a practical, affordable form of risk management.



Simple and Scalable

The sprayer operates automatically within the gin's existing workflow. Training is brief and can be remote or on-site. One bottle marks about ten tons of fibre.

HOW IT WORKS



Mark

Apply a unique natural DNA marker to fibre at the ginning stage, witnessed by an approved auditor.



Verify

Test yarn, fabric, or garments using qPCR analysis in authorised laboratories to confirm authenticity and detect blending.



Validate

Matching DNA results confirm origin, enabling CottonConnect to issue a Traceability Assurance Certificate alongside standard Transaction Certificates.