Progress Update: Verified Supply Chain Data on Cardano Testnet via Winter Auth

One of the central challenges in agricultural traceability is not simply "getting data on-chain," but ensuring that the data is **verified before it is recorded**. If unverified information is uploaded, blockchain immutability only preserves errors or fraud.

With our latest pilot work alongside Nature's Nectar, we've demonstrated that supply chain records can now be submitted to Cardano testnet only **after passing biometric and location checks**. This builds on our credentials framework, where each user is linked to an ADA Handle / sub-handle and must authenticate through **Winter Auth** before their submission is accepted.

Testnet Transaction Examples

Honey QA Record

- **IPFS Data:** ipfs://bafkreighk4jx2yc7ijhz25uefrewu3de253bghhojhicqx4htc37omud2q

- **Transaction:** CardanoScan Preview

- **Winter-ID:** `343a996d-8c60-4dee-936f-cd76786d313c`

The payload contains QA data such as drum IDs, moisture content, grade, export readiness, and attached lab certification. Importantly, it carries a **credential reference**:

```
"credential": {
  "verified_by": "$johndoe@honeycorp"
}
```

Honey Batch Management Record

- **IPFS Data:** ipfs://bafkreiai2c3rw5f4fu2jjxui3bamxipgmohmnrkldxywqy4qv2tcxqvye4

- **Transaction:** CardanoScan Preview

- **Winter-ID:** `cf3565f9-060a-422e-8a2d-eeb22eccd58f`

This record logs a processing batch with methodology, temperature handling, weights, and factory GPS coordinates. As with QA, the submission only succeeded because the credential was verified via biometric + location checks.

Why This Matters

- **Conditional Verification:** If the biometric or GPS metadata fails, the Palmyra Pro application blocks on-chain submissions.

- **Credential Anchoring:** Every record includes a `verified_by` field linked to an ADA Handle sub-handle, showing which authenticated person approved the event.

- **Immutable Records:** Once verified, the event is submitted to Winter Protocol on Cardano testnet, creating a permanent and auditable trail.

Next Steps

These testnet transactions prove the end-to-end flow: biometric verification → location validation → credential check → immutable on-chain record. The next stage is expanding beyond QA and batch management into **full survey workflows** and integrating auditor read-only dashboards for remote verification.