AgroLedger

Changing how we manage traceability

WE NEEDED TO RETHINK TRACEABILITY

We are responsible to our industry for the program's success, accountable to our industry, regulators and CCIA for all things CSIP and traceability.

WE NEEDED TO RETHINK TRACEABILITY

Our industry wants traceability but there is an expectation that when we have it we will be able to do all sorts of amazing things with the information collected.

WE NEEDED TO RETHINK TRACEABILITY

From a strictly regulatory perspective, traceability is like a black hole into which we throw data and money, neither to be seen again.

WE NEEDED TO RETHINK TRACEABILITY

We should not be sacrificing potential for the sake of old infrastructure. We need systems that can rapidly adapt to new and emerging technologies. Traceability can make sense if we can get innovative.

WE NEEDED TO RETHINK TRACEABILITY

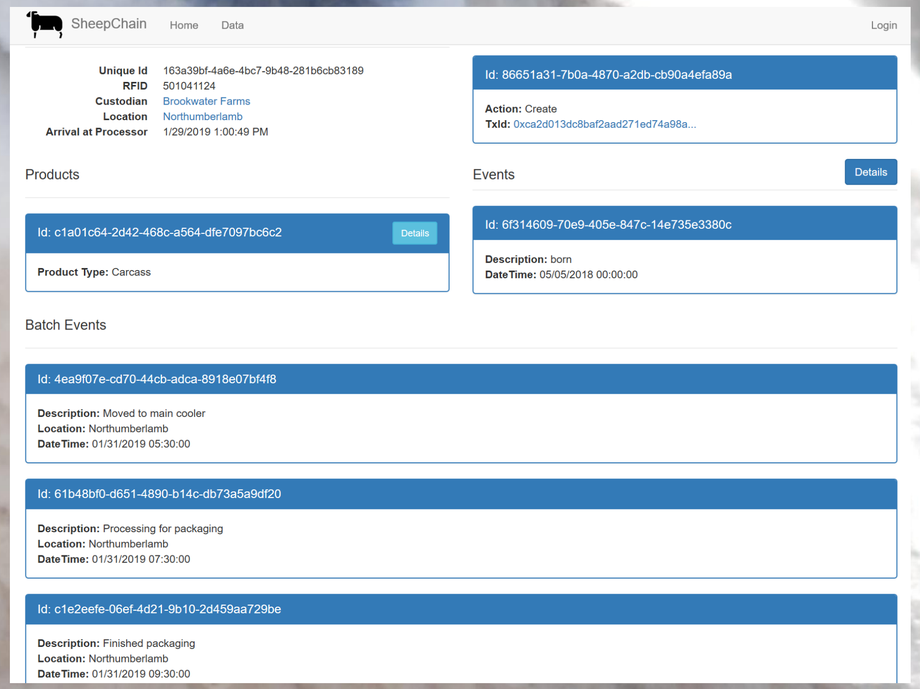
We need systems that can support rapid disease response, that create value for its users, that are easy to use and are cost effective to maintain.

WE SET OUT TO EXPLORE BLOCKCHAIN

We looked for a relatable, innovative, real-time blockchain application in livestock and met with developers in December 2018.

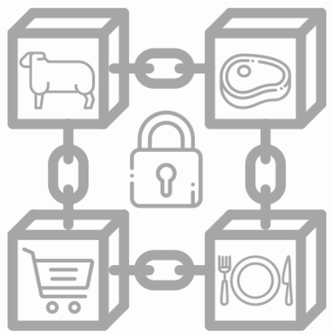
WE SET OUT TO EXPLORE BLOCKCHAIN

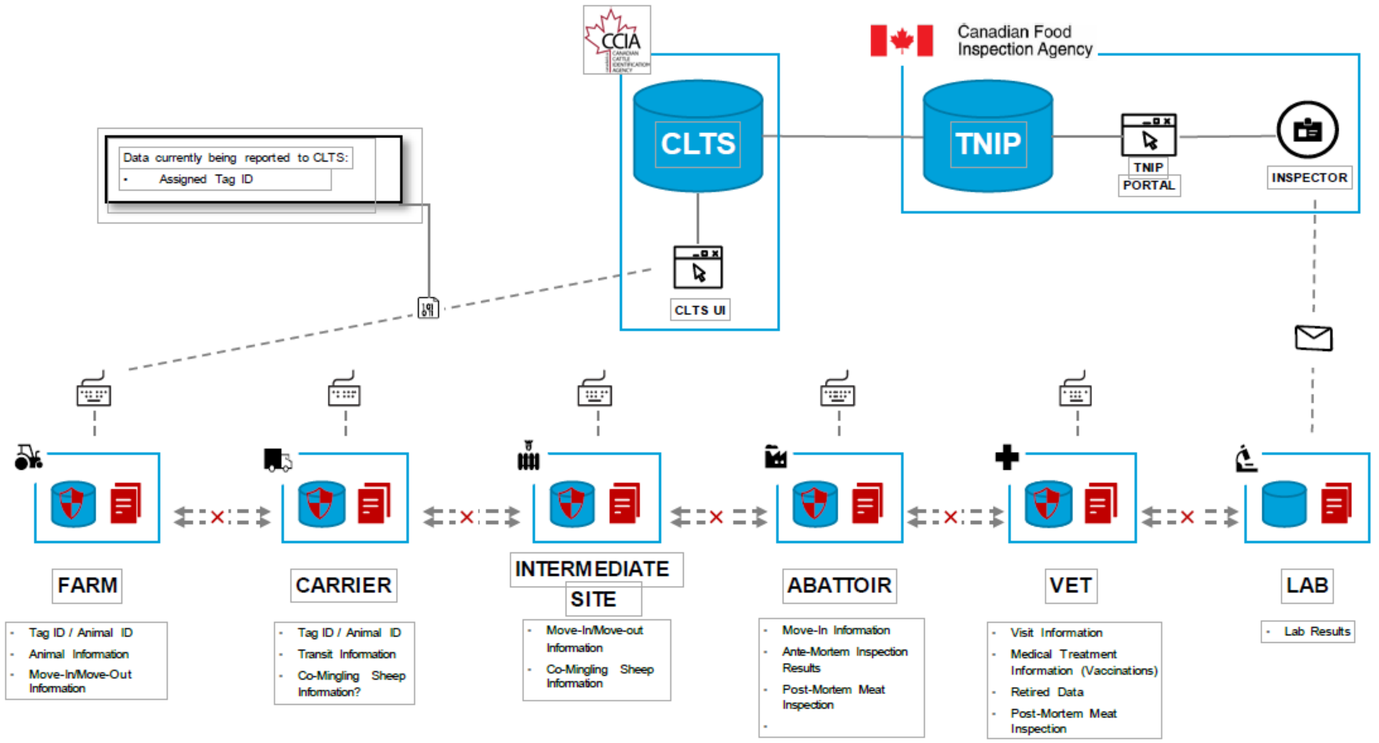
We trialed the technology to be sure it integrates with existing infrastructure.

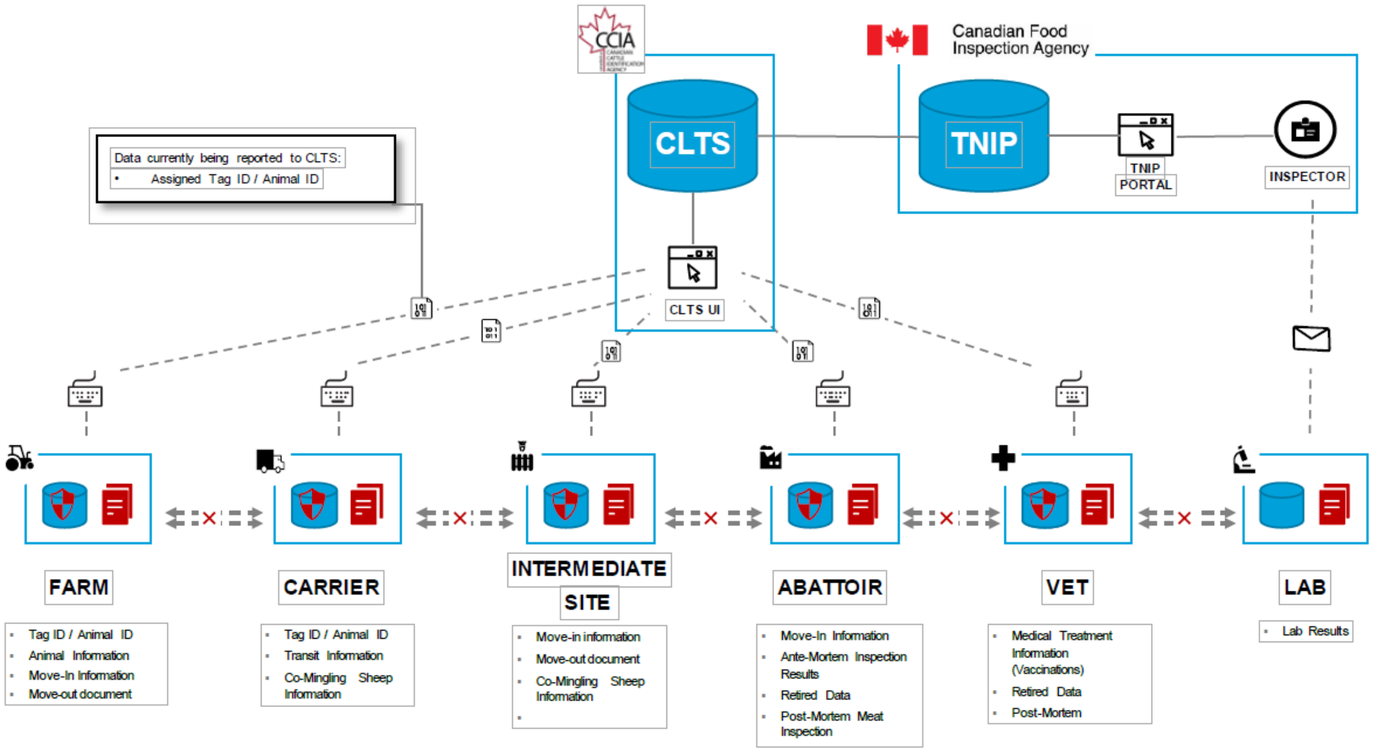


WE SET OUT TO EXPLORE BLOCKCHAIN

We partnered with the Community of Federal Regulators and Canadian Food Inspection Agency in a use case study of blockchain technology in a regulated space.




CCIA
CLTS
Canadian Food Inspection Agency
TNIP
TNIP PORTAL
INSPECTOR
Data currently being reported to CLTS:
Assigned Tag ID
CLTS UI
FARM
Tag ID / Animal ID
Animal Information
Move-In/Move-Out Information
CARRIER
Tag ID / Animal ID
Transit Information
Co-Mingling Sheep Information?
INTERMEDIATE SITE
Move-In/Move-out Information
Co-Mingling Sheep Information
ABATTOIR
Move-In Information
Ante-Mortem Inspection Results
Post-Mortem Meat Inspection
VET
Visit Information
Medical Treatment Information (Vaccinations)
Retired Data
Post-Mortem Meat Inspection
LAB
Lab Results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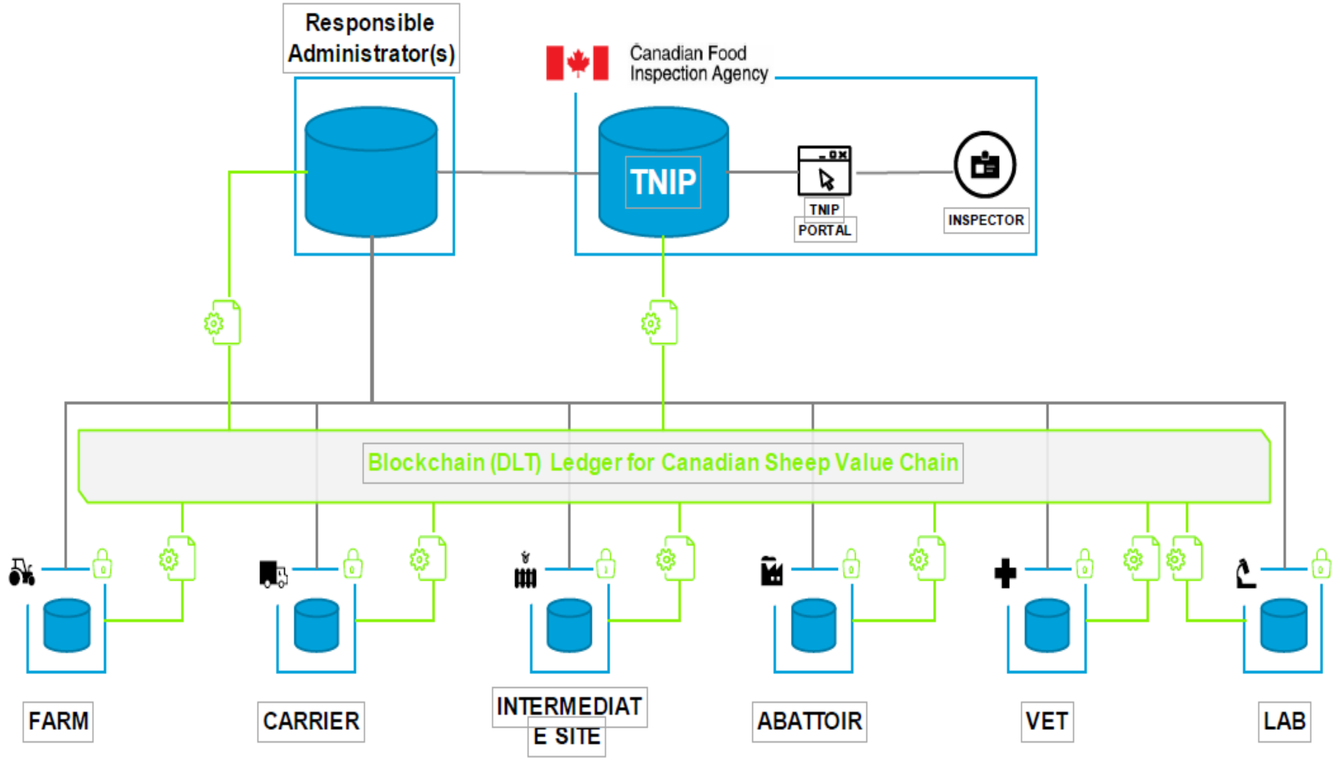
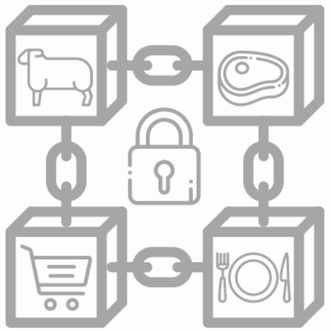
• Lab Results


Responsible Administrator(s)
Canadian Food Inspection Agency
TNIP
TNIP PORTAL
INSPECTOR
Blockchain (DLT) Ledger for Canadian Sheep Value Chain
FARM
CARRIER
INTERMEDIATE SITE
ABATTOIR
VET
LAB



INNOVATE

Frame | Discover | **Innovate** | Prototype | Plan

Broader Stakeholder Value Proposition

A blockchain-enabled value chain would add value to players across the industry

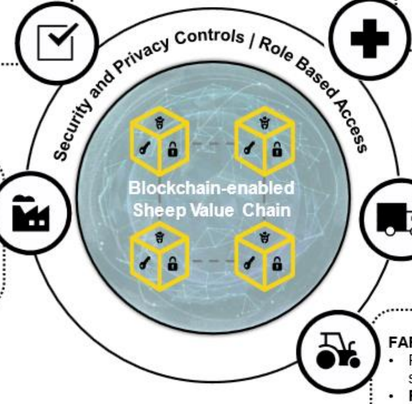
CFIA INSPECTORS
- Insights-based decision making from access to additional **high quality, real time data**
- **Confidence** in trace data, with ability to audit quickly
- Increased **speed to trace** the source of an outbreak

VETERENARIANS & LABS
- **Automation** through smart contracts for prescription and treatment administration
- Transparent **sample sharing** when investigating an incident

CARRIERS
- Opportunity for **automation** through smart contracts and IOT devices
- **Transparent compliance** with healthy animal transportation regulations

ABATTOIRS
- **Increased transparency** to enhance purchase decisions
- Opportunity to leverage on-premise IOT sensors for additional **automation**
- **Reduced data entry** and re-keying for on-premise information

FARMERS, FEEDLOTS, and AUCTION HOUSES
- Potential to access additional information from individual sheep **carcass performance** shared from abattoirs
- **Reduced data entry** for both record keeping and automatic reporting of livestock information



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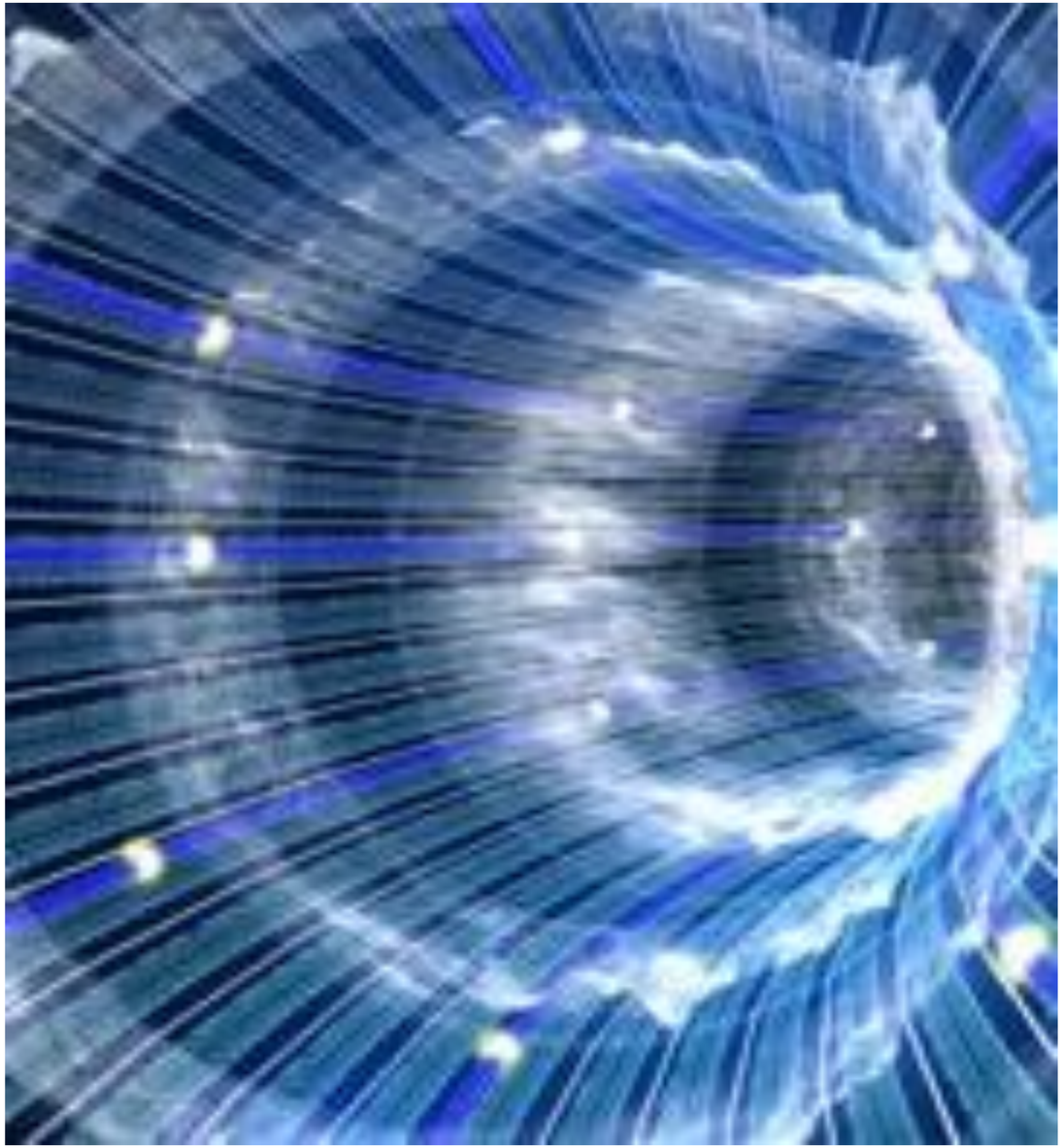


WHAT WE‘RE DOING DIFFERENTLY

We built the first blockchain application in Canada that traces livestock from farm to fork. Blockchain is a ledger of decentralized data that is securely shared. Blockchain technology enables a collective group of select participants to share data. With blockchain, transactional data from multiple sources can be collected and shared. (Oracle)

How Blockchain Technology Works

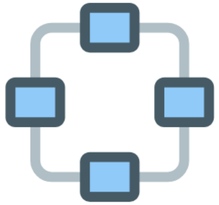
1

A transaction is requested

2

The transaction is broadcasted to a peer-to-peer (P2P) network that consists of computers (otherwise known as nodes)

3



The network of nodes uses known algorithms to validate the transaction and user's status

4

A verified transaction can involve cryptocurrency, contracts, records or other information

5

The transaction is combined with other transactions, once verified, to create a new block of data for the ledger

6

The new block is added to the existing blockchain (which is permanent and unalterable)

7

The transaction is now finished

WHAT WE‘RE DOING DIFFERENTLY

Blockchain is…

- ✓ Decentralized
- ✓ Immutable
- ✓ Transparent
- ✓ Permissioned

WHAT WE‘RE DOING DIFFERENTLY

But its not just about blockchain.

AgroLedger is based on the latest standards in connectivity and has a RESTful API at its heart, allowing other applications to interact with and extend its functionality.

WHAT WE‘RE DOING DIFFERENTLY

Existing systems are easily integrated and AgroLedger can push its information to downstream software and services, connecting existing agricultural management solutions and regulatory databases.

On-boarding additional partners is relatively simple; no large system integration is required. The system is built for the future.

WHAT WE‘RE DOING DIFFERENTLY

It uses the latest computing technology and web services to deliver at-a-touch traceability information, capable of digitizing and managing large chunks of information quickly.

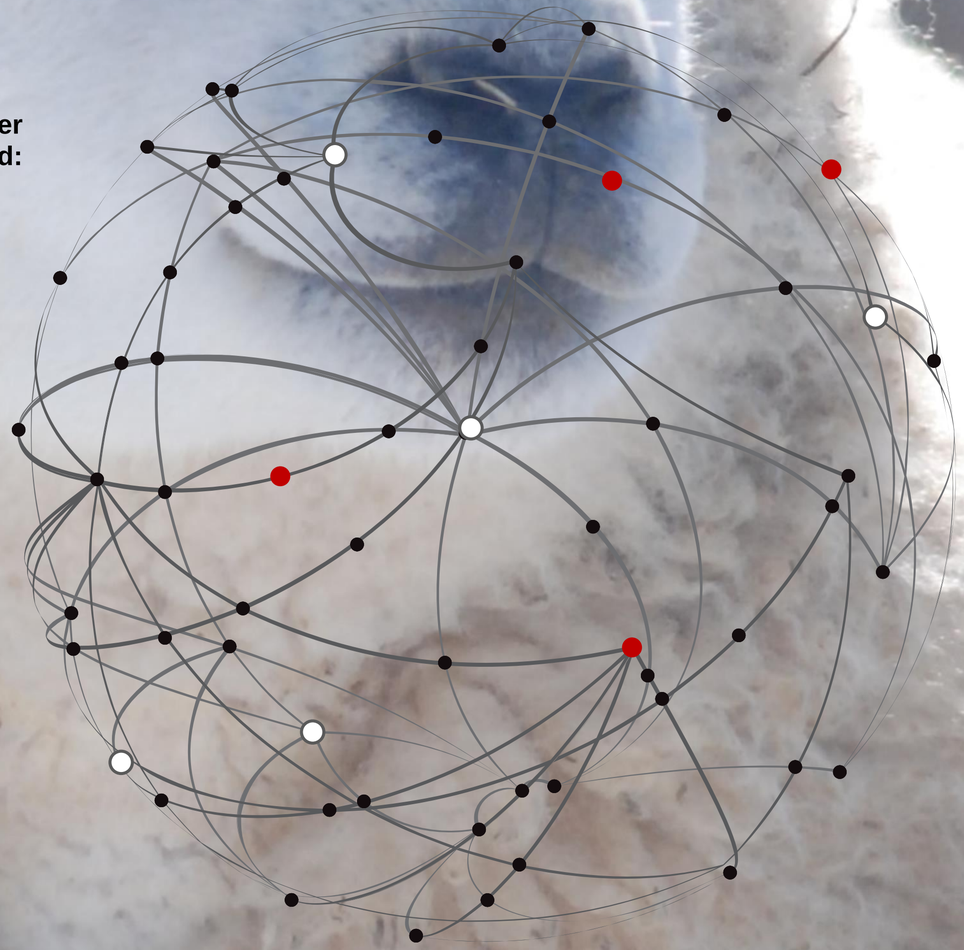
WHAT WE‘RE DOING DIFFERENTLY

- ✓ Provides full end-to-end, farm-to-fork traceability.
- ✓ Connects producers with consumers at the product level.
- ✓ Delivers critical disease information in real-time.
- ✓ Given its design, it provides de facto management capabilities allowing stakeholders to have key information about their operation at their fingertips.

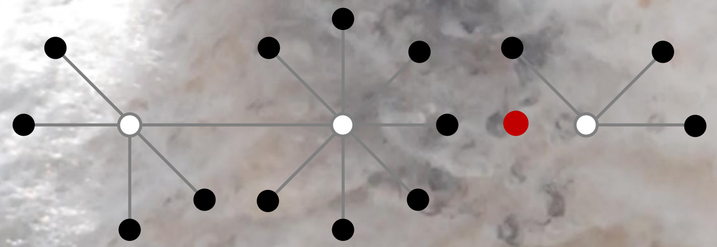
AgroLedger technology give us a system that is blazingly fast, tamper-evident and highly permissioned. This solution will accomplish what few others have managed to conquer to date, connecting the value chain from farm to fork on a product by product basis.

Farm to Fork Connections

AgroLedger Method:



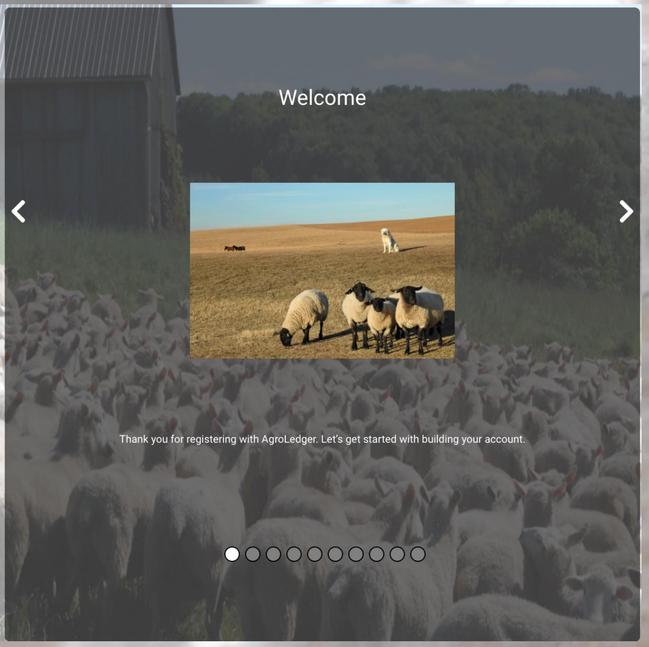
Traditional Method:

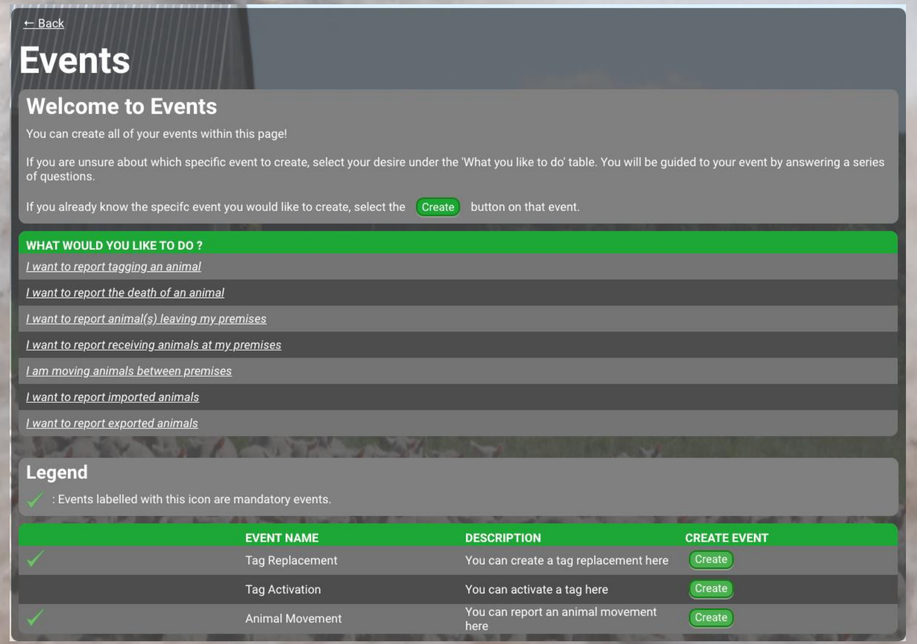


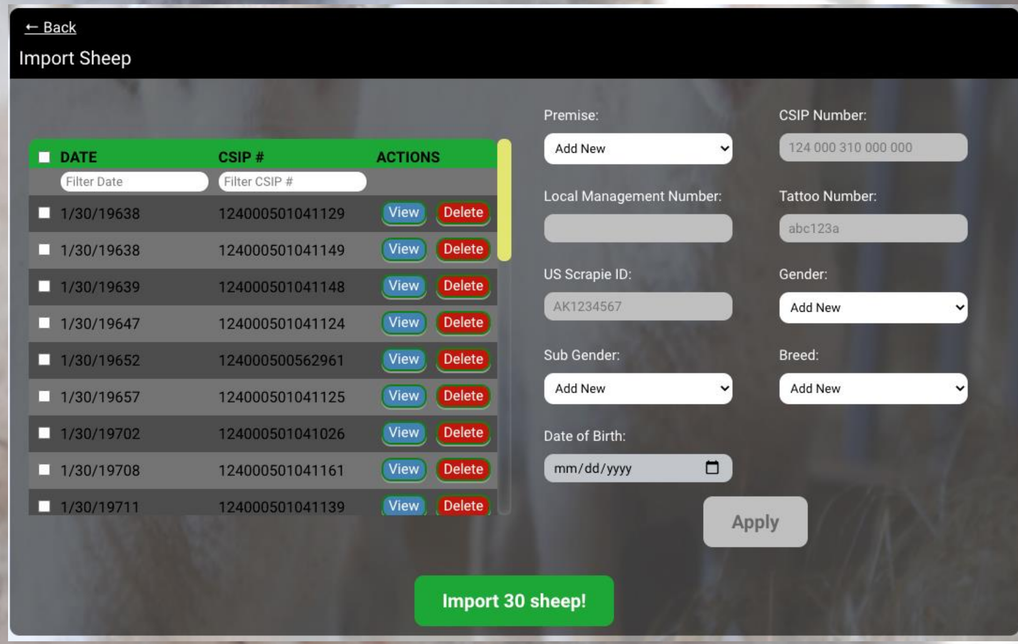
Consumer The Animal/Product Data Systems

WHAT WE‘RE DOING DIFFERENTLY

Despite being a disruptive technology on the back-end, it has an intuitive look and feel on the front-end.







THIS IS JUST THE BEGINNING

The short list for the next phase of development includes:

- ✓ Smart contracts for assurance programs and certifications.
- ✓ Customer feedback capability.
- ✓ Machine learning for predictive analytics and supply chain management.
- ✓ AI (facial recognition) for animal identification and animal welfare.

THANK YOU

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