



Trust
Alliance
New Zealand

Unlocking value in compliance

How to provide evidence
of environmental claims
and benefit from it



Capture. Share. Protect.

About Trust Alliance New Zealand (TANZ)

We believe that not sharing data can hold New Zealand's primary sector back. So we are working to ensure New Zealand's food and fibre industry can prove what we promise; and that together we can use data and insights to address the sector's biggest challenges and innovate to help us all be more efficient and productive.

TANZ is an advocate and enabler for a decentralised data management and trusted sharing framework. We aim to create a future where people and organisations are in control of their own digital identities and data; where a self-sovereign identity ecosystem creates unlimited value through trust and confidence; and where the food and fibre producers and enterprises balance sustainability and profit to maintain, extend and grow future value.

Trust Alliance New Zealand (TANZ) is a non-profit, member-driven organisation. Our members and supporters include many of New Zealand's primary producers, growers, exporters, retailers and service providers.



“A key objective is to deliver integrated farm planning to reduce duplication and cost for farmers and growers as they meet new environmental goals.”

Hon Damien O’Connor, Minister of Agriculture

By 2025, farmers will need to comply with environmental regulations around land use, water quality and emissions management.

We’re working to create a safe and streamlined digital approach for Farm Environment Plans (FEPs) as a compliance example; an approach that allows farmers and growers to easily collate and quickly share data and turn compliance work into a value-added activity.

Here’s what we discovered along the way...

The current challenge

Climate change poses systemic risks to agriculture, resulting in more and more regulation and compliance data requirements.

On top of this, consumers now expect proof that the products they buy are good for them and for the environment.

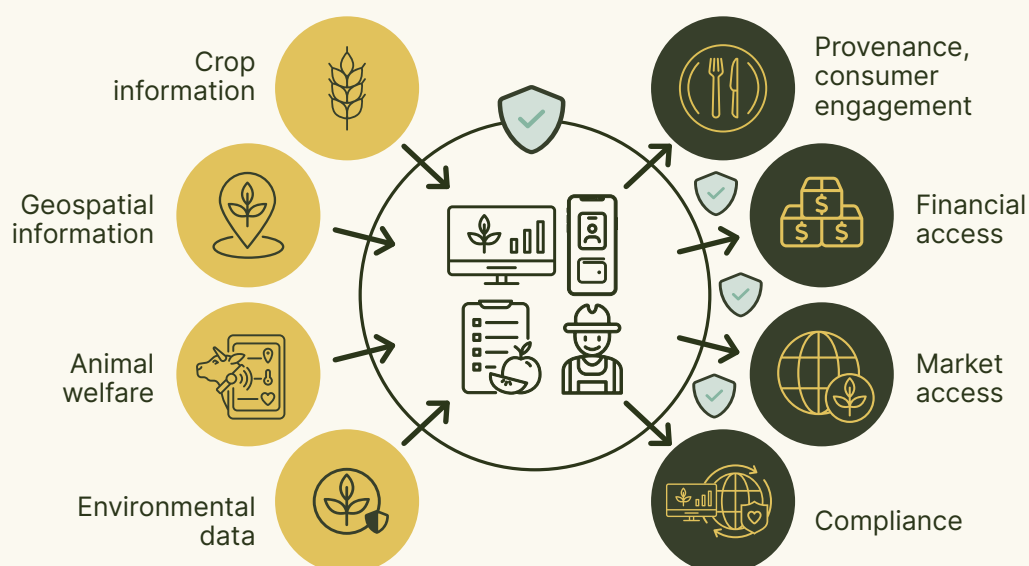
Global standards of data verification are changing and becoming essential for exporting. New Zealand agriculture must align to ensure international market access, including opening up new markets.

More and more information is being demanded from farmers and growers (as well as upstream players in the value chains); as an example, in the form of Farm Environmental Plans (FEPs) or Fresh Water Farm Plans in the future.

Currently, all that data is scattered amongst a range of unconnected tools, sources, databases and platforms that make information exchange, and not proof of authenticity of the data points, difficult.

Compounding the issue, systems to provide and verify this information are so overwhelmingly complex and inefficient that the effort required to complete FEPs or other environmental compliance work, far outweighs the perceived value.

Farmers, growers and producers are having to capture and manage huge amounts of information via various means and in different places that aren't always connected. It's important information, but right now, it's very hard to manage.



With so many inputs (left side) there can be 'data chaos' on a farm. Plus there are many outputs or receivers (right side) that require the data for many different purposes.

New Zealand must keep up with global expectations

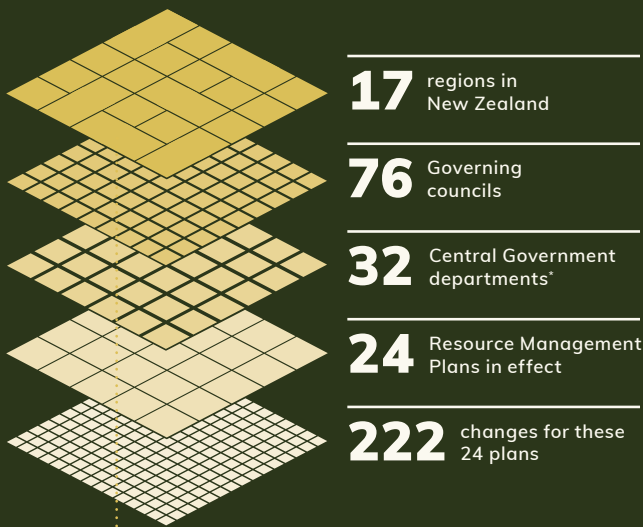
For some time in the European Union and North Americas a decentralised data sharing model has been in play and is set to become a global standard.

What happens if our primary sector cannot digitally prove the New Zealand brand promise (along all stages of the value chain from 'fork to farm') in a secure and trusted way?

This will also apply equally to the local market eventually, either from a regulatory perspective or from a consumer perspective.

Lack of definition and a complex regulatory web

We found there is no one standard definition or template for FEPs. Rather, they are compiled to suit the purpose and audience requiring it. So we also dug into the planning process and found it was very, very complex and unclear.



1. Farm Environment Plan is a process. It does not necessarily culminate in a specific output, so the FEP output would be an easily collated set of verifiable data points arranged to meet a variety of stakeholder needs. The decentralised technology solution can be used to allow farmer and growers to control and manage verifiable data sets that in turn enable FEPs data components to become portable and easily sharable, if required.

2. In order to enhance data interoperability a repository for standard definitions, classification and categorisation of farm data is required.

It is imperative that the primary sector has a standard definitions, classification and categorisation of farm data. Therefore programs of work presented by initiatives such Link Aotearoa** will be foundational for enhancing data sharing in the Primary Sector.

**Link Aotearoa is an initiative collecting, documenting, and providing information regarding the use and definition of agricultural data.

Please note: these figures are a snapshot of the status quo as we discovered it and are correct to the best of our knowledge. However, there may be additions we are not aware of at this time and are subject to change.

There are **17 regions** in New Zealand governed by a whopping **76 councils!**

Within these, we found **24 Resource Management Plans** in effect to some extent.

But wait – there’s more! There have been at least 222 plan changes for these 24 plans. As if this was not complex enough, these regional plans do not all cover the same things, and if we were to count all the resource plans per region this number would go up considerably.

Several regions break off one or more of the following into a separate plan:

- Freshwater Plan
- Water Plan
- Soil Plan
- Coastal Plan
- Pest Management Plan
- Air Quality Plan
- Waste Management Plan

Plus, occasionally a specific area or catchment gets its own Resource Management Plan.

And that’s just local government. To add another layer of regulators, there are **32 central government departments** (although not all of them directly impact agriculture).



What should be the standard in FEPs?

We tried to identify which parts of FEPs were common across the different types and regions, but only found more challenges and complexity:

- Countless and varied triggers to requiring FEPs
- Different uses (e.g., support material, compliance documents, methods for implementing specific actions, etc.)
- Widely varied formats, data points, systems and delivery mechanisms
- Some plans are only available through paid consulting or industry programmes

With further work, and by looking towards some of the larger FEP frameworks (e.g., NZGAP, NZFAP, FAR FEP etc.), we can start to identify sections or modules in the various farm plans.

For example:

- Farm business information
- Farm information
- Farm story
- Maps
- Farm activities
- Nutrient budget / management (n-cap)
- Irrigation plan
- Pest control
- Biodiversity management
- Stock exclusion plan
- Intensive winter grazing
- Risk areas
- Risk assessment
- Assessments (funding / economic)
- Action plan / mitigation
- Catchment context
- Soil management
- Freshwater management
- Regional plan requirements
- Slope areas
- Management units / land units
- Audit report / certification report
- Zone management
- Critical source areas
- Iwi management plan



Exploring solutions

The research has shown a need for a standardised and more efficient way to share, access, process and analyse data, in a secure way that keeps you – the farmer or grower – in control of your information.

The dFEP is an exemplar for all compliance requests on a farm.

Farmer/grower potential benefits:

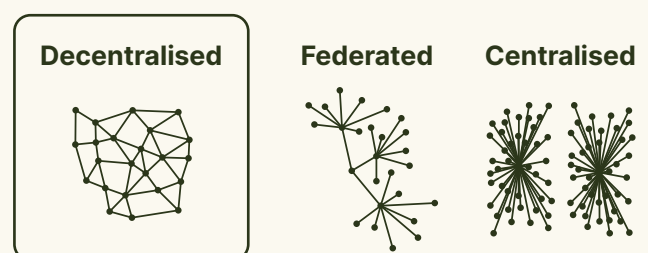
- Reduce data entry and duplication
- Reduce compliance costs
- Gain value-add from compliance requirements
- Improve efficiency
- Enable self-controlled, trusted data sharing
- Strengthen trust through proven evidence
- Promote better environmental and sustainable outcomes for New Zealand

Making data sharing safe, trustworthy and efficient

We understand that some data is commercially sensitive. That's why we believe it should NOT go into a central platform with everyone else's data.

Instead, we're developing a decentralised framework that will mean you (the farmer or grower) retains ownership and control over your data and digital identity, stored locally on your own network. But through the use of modern technology, as an industry we are all connected and can request and share verified information quickly and easily.

Decentralised data is also at less risk of external cyber attacks.








Digital identities







So that you hold onto your own data, and it can be verified and trusted, each farm enterprise will have a digital identity. As individuals, we already have multiple types of identities.

Decentralised digital identities don't have to be limited to people and organisations; you can create them for anything, e.g., a cow, a tractor, a paddock, etc.

Tangible identities

-  Passport
-  Birth certificate
-  Driver's licence
-  House deed
-  Credit cards

Digital identities

-  Email accounts
-  Service providers
-  Bank accounts
-  RealMe
-  Web and app logins
-  Company data sharing

This creates transparency and traceability throughout the entire value chain.



A 'digital wallet' is a secure, encrypted 'filing cabinet' stored locally by the farmer or grower, and it's used to receive, access and control verifiable credentials. Once verified, highly qualitative, valuable and reliable data can be easily requested and shared with other entities. This reduces data duplication and makes the whole process more efficient, effective, and secure.

Farm digital wallet



Issuer – Entity which issues credentials. Credentials are issued as Verifiable Credentials (VC).

Relying Party – Entity which requests and receives VCs from Holder and provides benefits from them.

- Verifiable Credentials and Presentations have valid digital signatures.

- Verifiable Credentials are trustworthy and permissioned.
- Holder entitled to hold them.

Holder – Entity holding the VCs and presents it to the Relying Party. Credentials are presented as Verifiable Presentations, which can be verified and/or transferred by permission.

Trust Registry – Holds all the essential data and meta-data.

- Public keys of the issuer.
- Schemas and properties that VC contain.

Governance Trust Framework – Defines policies, rules and roles within the data sharing ecosystem.

Next steps

1. Build a repository for existing and new standard definitions, classifications and categorisations of farm data.
 - a. “Link Aotearoa” could be a mechanism/ vehicle for collecting, documenting and sharing information regarding the use and definition of agricultural data.
2. Create a tool such as a digital wallet for farmers and growers, to improve the efficiency of sharing their verified farm information with regulators, auditors, financial services, processors and/or retailers.

We recommend being part of the journey and playing a leading role in how you can decide who has access to your information, for how long, and for what purpose.

When will it happen?

A new project is scheduled to evaluate the requirements to deploy a pilot in 2023. It is estimated to take around two years.

Please contact us if you are interested in contributing or have an queries.

Appendix

Funding

This digital Farm Environment Plan (dFEP) research project was led by Trust Alliance New Zealand (TANZ) and co-funded through the Sustainable Food and Fibre Futures (SFFF) funding vehicle of the Ministry for Primary Industries (MPI).

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- Contributors/co-writers: Sam Ragnarsson, Chad Payne
- Robin Brooks and Ministry for Primary Industries

Who we talked to

Stakeholders	Engagement
Engaged farmers and growers	2 focus groups
Farmers and growers in key agricultural areas nationwide	10 face to face and telephone interviews
Māori agribusinesses and iwi entities	4 face to face or telephone interviews
Wider agri-tech sector	1 focus group, 1 interview
Catchment groups	2 interviews
Wider agri-food sector	1 focus group, 1 interview
Industry groups	1 focus group, 3 interviews
Regulators (central)	2 focus groups
Regulators (regional)	1 focus group, 1 interview
Rural professionals: consultants and contractors (service providers in the FEP space)	1 group interview

The approach we took

Knowledge audit
with TANZ members

Primary data
collection through
stakeholder
engagement

Activation
workshop with TANZ
members

Report of
findings



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Disclaimer:

The opinions and recommendations expressed in this report summary are the result of a collaborative, consensus-based working process of the workstream members. Any given stated opinion or recommendation does not necessarily reflect the position of any one individual workstream member, nor of their respective employers or organisations.



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