Land use classification case study – barriers and opportunities

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Problem: Do we know what we grow where?

Image by LINZ showing a variety of land uses in Gisborne area

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Why is it important?

Biosecurity

Emergency response

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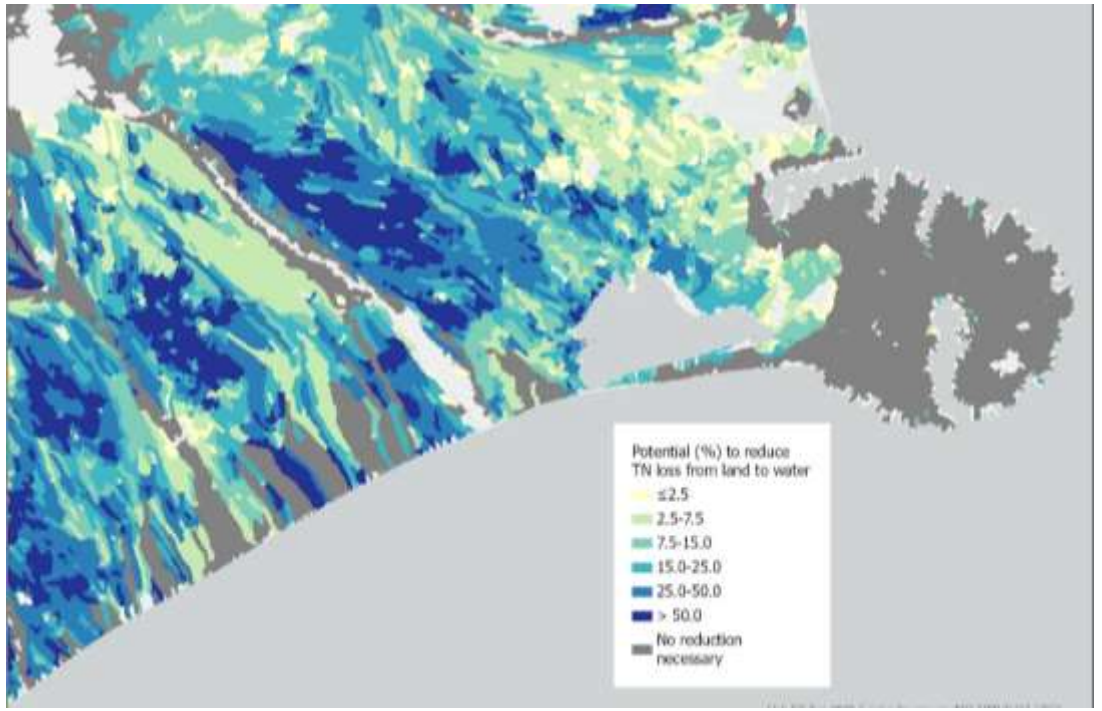
Why is it important?

Land suitability / Climate change adaptation



Environmental modelling

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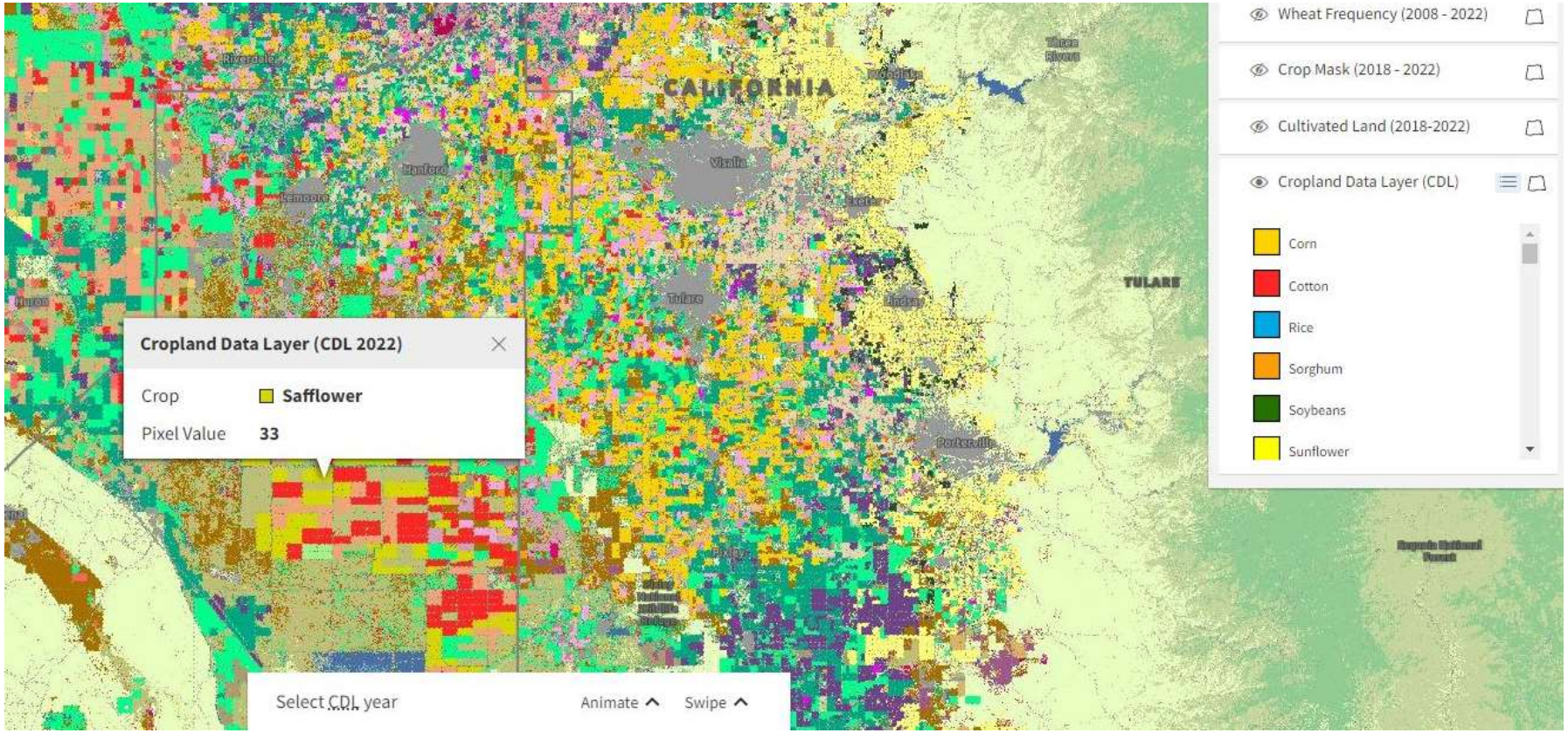
Has this problem been solved before somewhere?



USA CropScape:

- National coverage
- 133 classes
- Annual update
- 30 m / pixel

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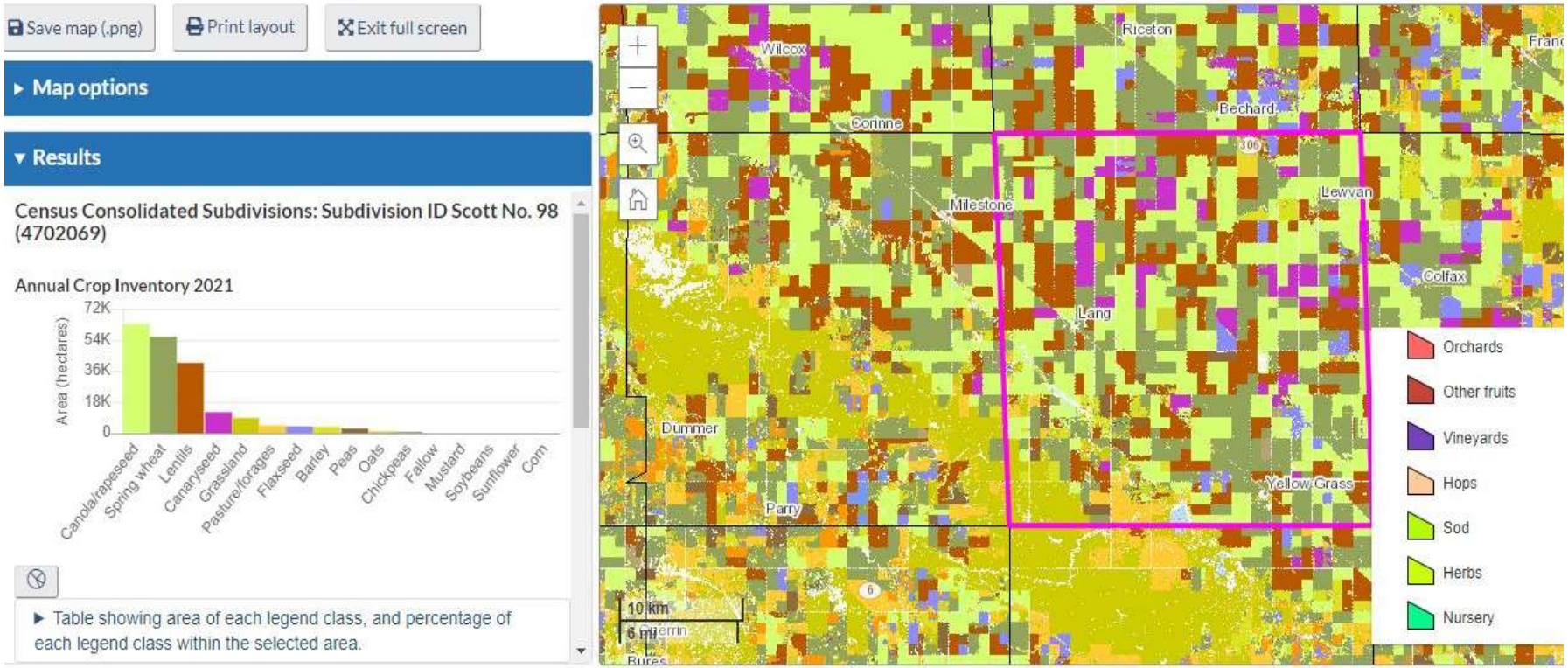

Canada ACI:

- National coverage
- 72 classes
- Annual update
- 30 m / pixel

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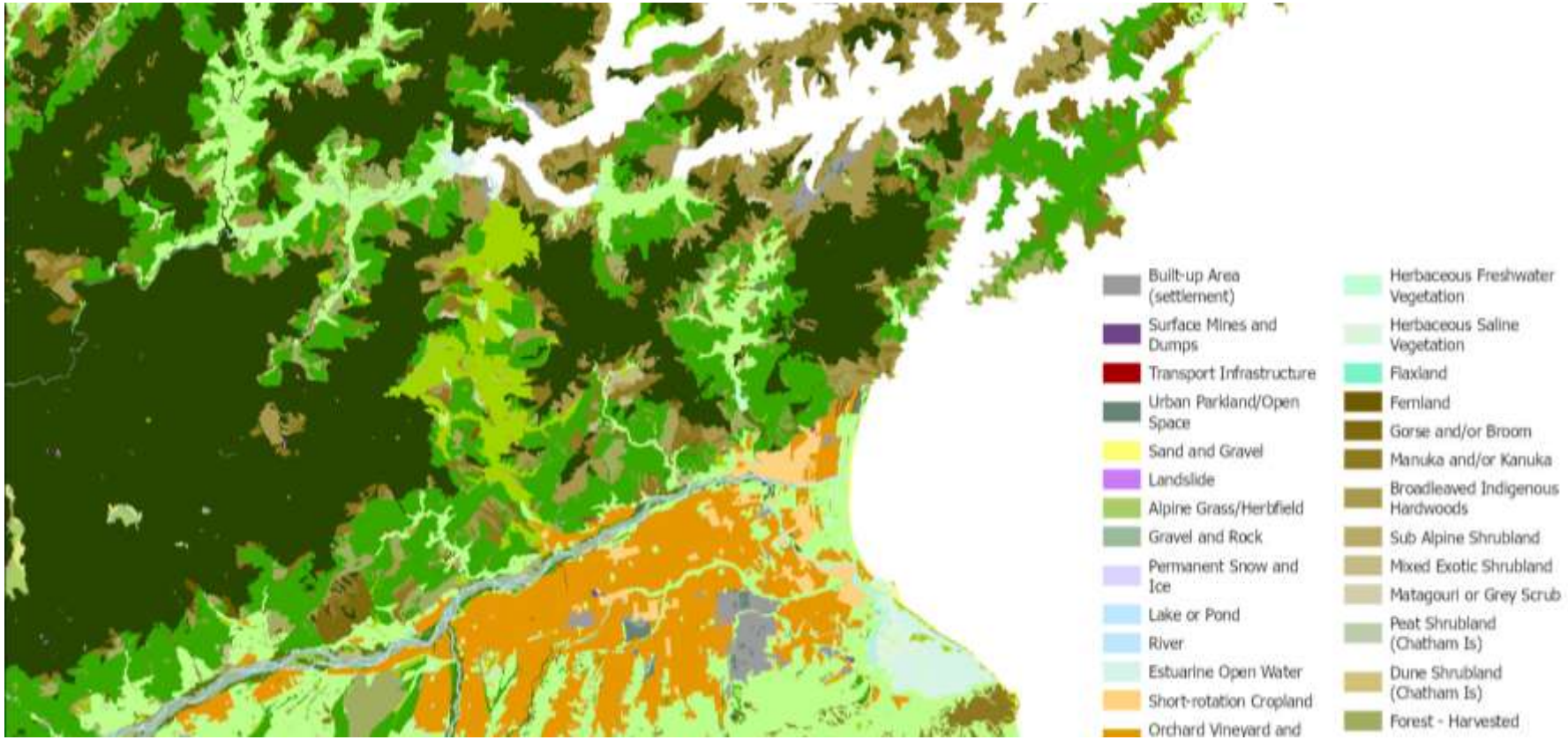
What is available in New Zealand now?



LCDB / LUCAS:

- National coverage
- 33 / 12 classes
- 2 crop types
- Biannual update
- 2 year release lag

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Are there any barriers for classification improvement?

- Insufficient understanding of benefits of dataset availability within industry
- Lack of local open data for model training
- Limited ground truth data
- No coordinated approach to the solution
- Funding

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Here is how we overcoming them

European training dataset with 16 crop types – needs modification

High resolution aerial imagery from LINZ – semi-automatic labelling of maize

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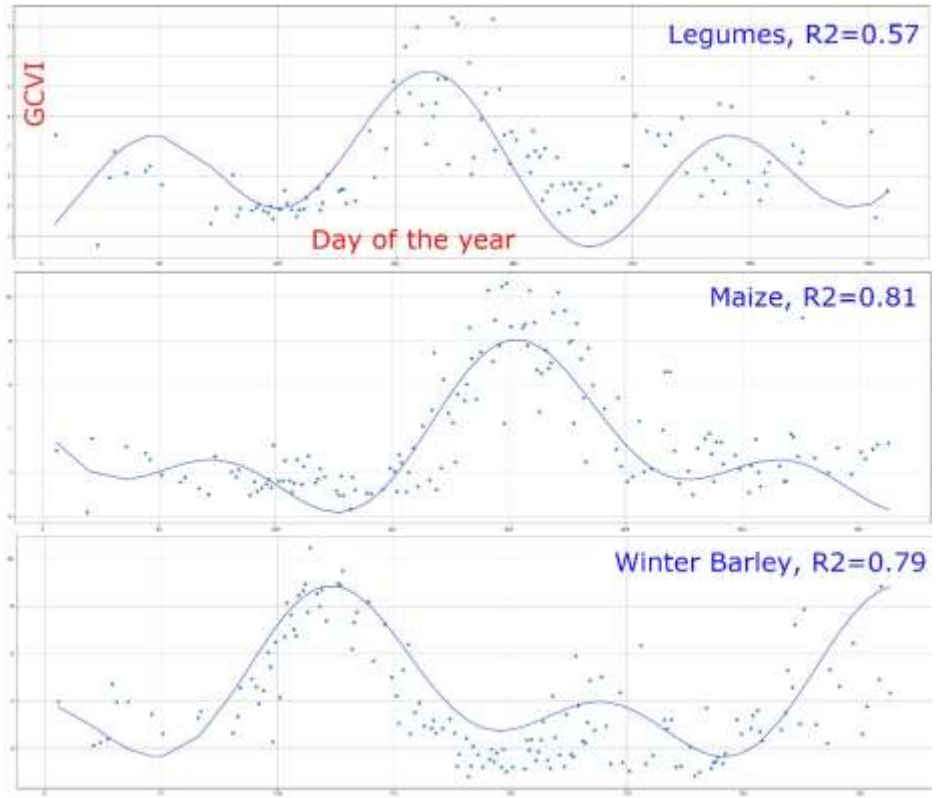
Methodology and technologies



Spatiotemporal variation in vegetation index for different crop types during growing cycle

Resulting datasets with segmented and classified polygons

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A scope for productive collaboration

- Data sharing between sector players
- Interoperability to make sharing open and efficient
- Mutual benefits for Research and Commercial sectors from the same datasets
- Agreements between Research sector and Commercial remote sensing providers/start-ups for beta-testing and discounted data supply

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B3 Science Solutions for Better Border Biosecurity AOTEAROA NEW ZEALAND

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