

A Celebration of Resilience.

A wide-angle photograph of a lush green cornfield. The rows of corn plants are dense and extend far into the distance, creating a strong sense of perspective. The sky is a clear, bright blue, and the overall scene is vibrant and healthy.

By

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Funded by MPI; FAR; and Vegetable Research & Innovation (VR&I).

This project was entirely aimed at and for growers.

- **We applaud them for the courage, strength, tenacity and the good humour they have shown throughout.**
- **We recognise the physical, financial and emotional impact this event has had on them and their families.**
- **We thank them all for their openness and willingness to give freely of their time and knowledge for the benefit of all.**

“The new 1300 Hectare CHB boating Lake”



**Pakowhai silt
February
2023.**

**When the
water
receded, this
is what
growers were
faced with
just after the
Cyclone.**



By the time the project started in Mid-September this is what it looked like if it had been left undisturbed.



By this stage, the growers were moving on, already had made plans and were implementing these.

- **Most had established Cover crops where possible.**
- **Some already had crops established for the season.**
- **Some fields were yet to be touched.**

No one really knew what was going to Happen. Therefore, we took an Observational Approach where it was important to cover

- **Sites from a range of geographical locations.**
- **A wide range of crop types.**
- **A range of silt deposit thicknesses including extremes.**
- **A range of grower approaches/resources (incl. silt removal).**
- **A range of silt types where possible.**
- **Double cropping if possible.**

We ended up with a lot of sites 34 in total

- **Spread over 5 clusters with multiple growers represented.**
 - CHB Te Aute Valley
 - Swamp Road Omahu/Moteo.
 - Pakowhai
 - Sears Road
 - Wairoa
- **2 silt types.**
- **Side by side silt removal versus not removed.**
- **Many crop types**
 - **Market garden** -Lettuces /Brassicas/potato
 - **Process** -peas/sweetcorn/carrot/beetroot/tomato
 - **Cucurbit** -squash/pumpkin
 - **Arable** –maize grain/barley/winter wheat/popcorn
 - **Seed** –rocket/coriander/buckwheat

So, What Happened?

This is in the context of what turned out for most crops to be a kind season with good rainfall until January and then a dry Harvest.

- Cropping on silted sites in the Heretaunga plains was very successful.
- No extra pest and disease inputs were required. Some fields had an extra side dress applied otherwise fertiliser practice was as normal.
- Most situations grew and produced crops at or above normal pre cyclone levels, and current season non-silt crops.
- Generally, Growers are comfortable to return to normal cropping cycles on these sites.
- The exception to the above would be the sandy silt type sites.
- Wairoa was unable to establish many crops due to the continual rainfall.
- In another less kind drier season would these results have been the same?

Silt removal process created lots of traffic that needed remediation. Timing of the removal not controlled by grower.



But Produced these crops



Very good-looking Pumpkin crop



Very good-looking Popcorn crop

This same level of silt worked into neighbouring fields.



Became



Good looking late planted Pumpkin Crop



Good Market Brassica crop

And



Pumpkin Crop
Big Fruit size
80 bins (56 t) per Ha
Storing very well to date



Maize Grain
P1185 91K
15.2 T/Ha Dry



**This situation
worked into fields
in another cluster**

**Early crop Process peas
7.1 t/Ha @107 TR
25% above season average
Top 10% of similar aged crops
No herbicide required**

Produced

**Export squash late planting December 19th
22 t/Ha**



**Beetroot crops
88&98 t/Ha paid**



**This very challenging type
moonscape at another cluster.**



Produced

**This late planted
SU sweetcorn
22 t/Ha**



**And this neighbouring early planted Super Sweetcorn
Extremely good 29 t/Ha paid**



And this extreme situation at another cluster site.

Produced plants that grew like this

**Export Squash var Ajihei
19.9 t/Ha Field Yield.**



**Super sweet corn later planting 13 November
Delayed germination and therefore
maturity in the heavy silt area.
Field Harvested as one.
Averaged 17.5 t/Ha Paid.**



**Wairoa silt
inundation was
next level
again.
And it just kept
on raining
preventing
many cropping
opportunities
taking place
this season**



Sandy silt layer severely impacted maize plants growth and yield by delaying/ preventing the roots reaching the soil below. Spade depth is too deep.





Start: Apr 9, 2024 2:52 PM
End: Apr 10, 2024 3:17 PM

Work Totals

Area Harvested: 10.1 ha
Total Yield: 131 t
Wet Weight: 13.5 t/ha

Performance

Speed: 4.5 km/hr
Working Time: 3 hrs 49 mins
Throughput (Wet): 28.2 t/hr

Map: Yield (Weight)

Operator Name:

Yield: 13 t/ha
Moisture: 18 %
Total Wet Weight:

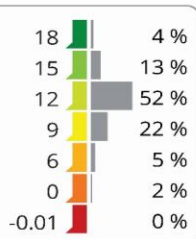
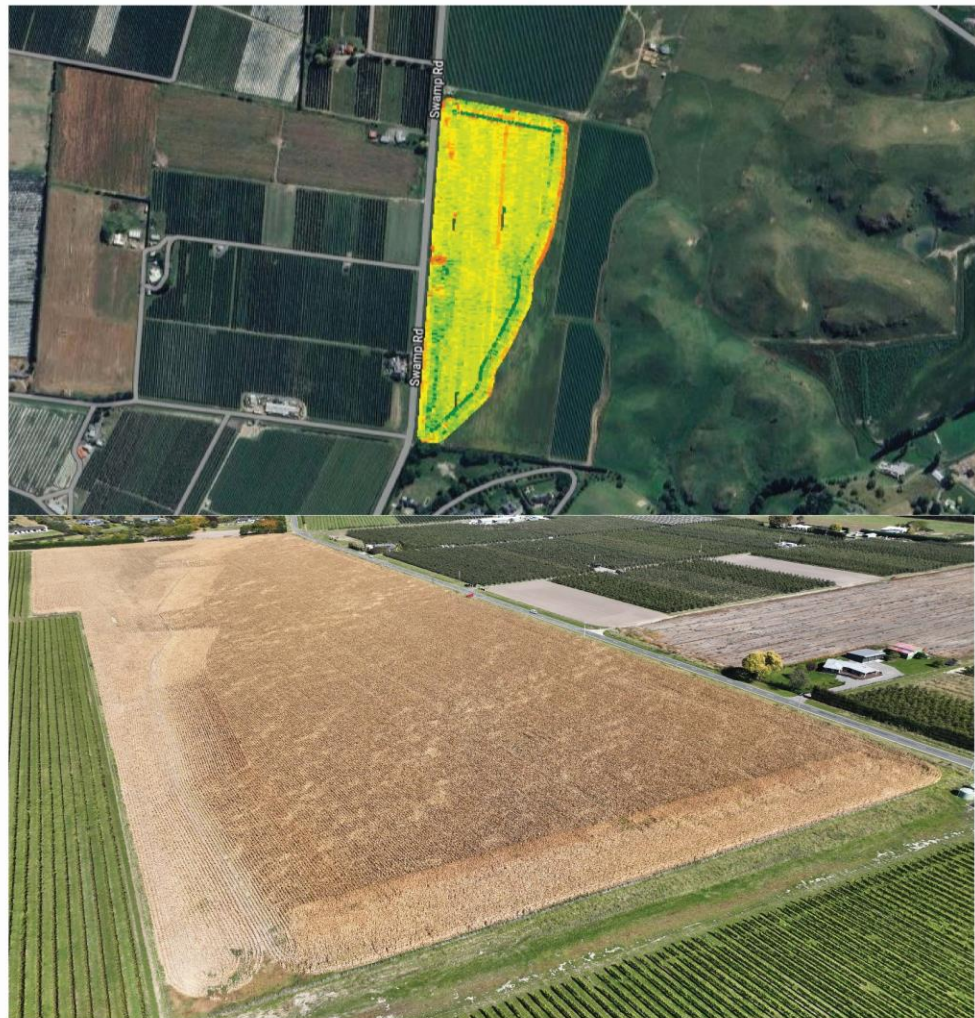
Productivity: 2.6
Throughput (Dry)

**Above 25 cm thick decimated
yield.
But even above 10cm thick still
had a definite yield impact.**

Operator Name: Guy

Yield: 6.9 t/ha
Moisture: 15.2 %
Total Wet Weight: 25 t

Productivity: 2.7 ha/hr
Throughput (Dry): 28 t/hr



Equipment

Unknown Machine:
Unknown Machine

Varieties

PAC430
Brand Name: Corson
Seeds

Conditions

Sky Condition

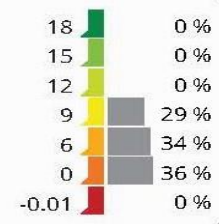
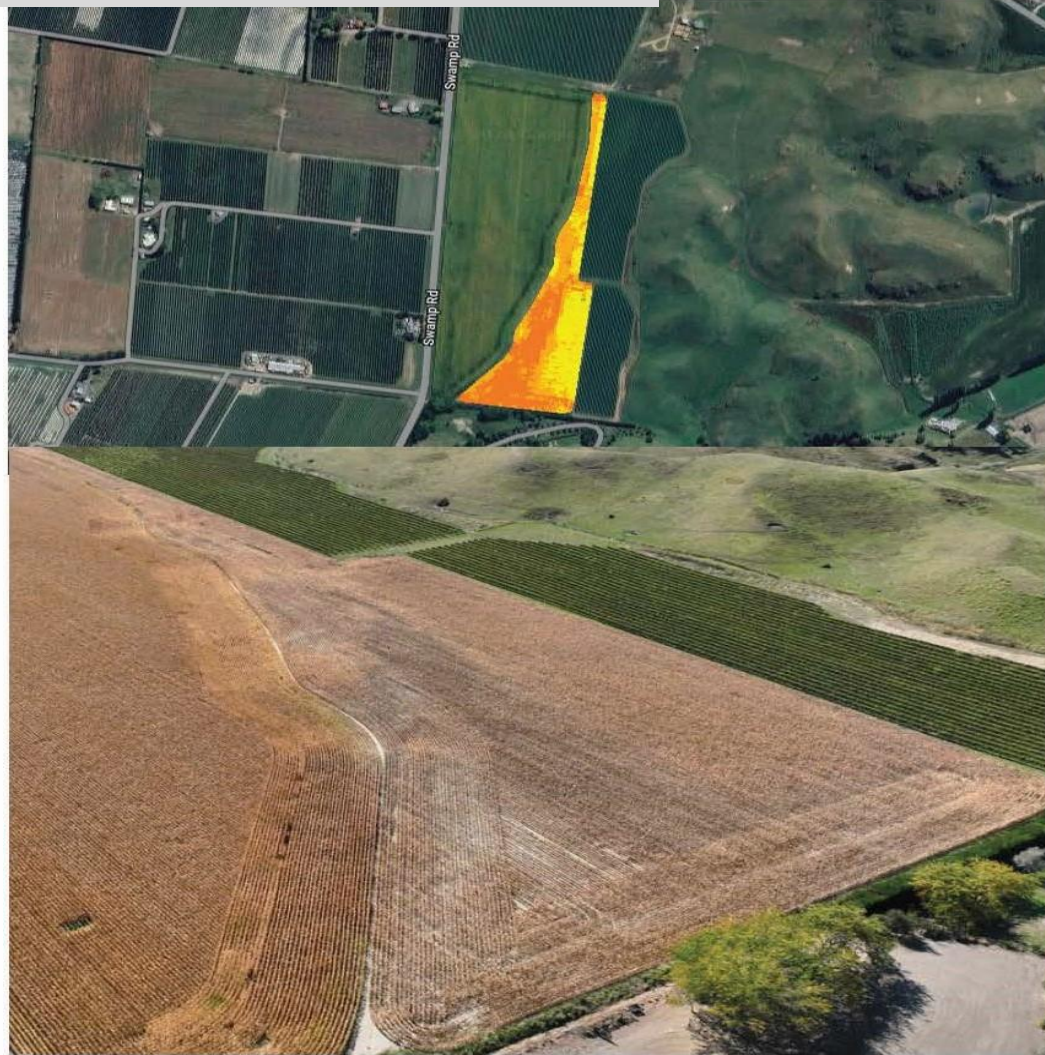
Predominant: Cloudy

Soil Temperature

Average: 11 °C

Soil Moisture

Predominant: Ideal



Equipment

Unknown Machine:
Unknown Machine

Varieties

P9127
Brand Name: PIONEER

Conditions

Sky Condition

Predominant: Cloudy

Soil Temperature

Average: 11 °C

Soil Moisture

Predominant: Ideal

Similar effect seen in a pea crop nearby. Poor uneven crop resulting from the Sandy Silt deposited.



So, what else did we learn.

Taking care of yourself and your family is very important after such an event.

- **Growers push their limits even in the best of times.**
- **Take time to check on everyone, family, neighbours, other growers.**
- **Local networks are critical. Make yourself aware of what financial and other help is available.**
- **It may be weeks before you can get on with things**
 - Take some time for yourself and family
 - Get away from the situation if you can for a time
 - Use this time to develop a recovery plan
- **Keep your social networks open**
- **Take time out to have some fun. “Rowing on the new lake”**
- **Don’t feel embarrassed to ask for help**
- **Being able to create a plan forward and getting on with things was very important for grower mental health.**

It is likely that field tiles and Drains will be clogged.

- **Cleaning and reparation are important to help speed up the drainage and drying of the silted fields.**
- **Talk with the council about work plans to clear drains.**
- **Check that your field tiles are working properly.**

Extra remedial cultivation was required to deal with the silt.

- **There is no right or wrong way necessarily. All approaches resulted in good viable crops.**
- **If your planting timetable allows, take time to get the silt right. Having to start too early increases the number and cost of extra passes to “knock things into shape”.**
 - **Once you can, stir the silt up to help with the drying process.**
 - **The silt holds onto moisture. Be prepared to wait longer between cultivation passes.**
 - **Post harvest, growers still report needing a longer gap between cultivation passes.**
 - **Extra ripping was often reported as the flooding created a tighter profile.**
- **Some bigger specialist machinery may help with the process. Don't be embarrassed to ask for help.**

Apart from the sandy silt, the results from this first year study for the crops covered suggest that the silt inundation

- Did not significantly impact the financial dynamic of growing subsequent crops.**
- Nor the financial risks involved.**

Where to from here?

- **Post Cyclone, there was a lot of uncertainty**
 - Will crops grow
 - Should we wait for a year or more
 - What crops should we risk growing
- **The success of the number and wide range of crops in this study, provides for strong confidence to return to cropping when faced with this type of silt inundation.**
- **Because it was a kind season and no onion crops were grown on the silt, we feel it prudent to continue to study some of these sites for longer (hopefully including an onion crop) to be more confident of our findings on some of the more extreme situations.**

Leave the last word to a quote from one of our processors.

- **“As you can see despite the common perception of the very bad impact of the flood on soil health and potential yield all the flood-affected paddocks we grew the crops on this season performed exceptionally well”.**