

# Cyclone Gabrielle Research Symposium: Insights from Attendees

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Authorship notes: Facilitated session was led by Dirk Wallace (FAR), with support from Sally Anderson (Vegetables Research & Innovation), Megan Cushnahan (FAR) and Dan Bloomer (LandWISE/Page Bloomer). Thematic collation was supported in person by Sally Anderson. and Megan Cushnahan. Microsoft co-pilot was utilized to further collate themes and summarise key learnings. Document was reviewed and corrected by Dirk Wallace – lead facilitator for the session.

## Introduction

This report aims to record the collective thoughts of a group facilitation session held during the symposium. We would like to thank all participants for contributing to this document and highlighting what went well and what could be improved for future responders.

It aims to: (i) consolidate what aided recovery; (ii) clarify surprises and challenges encountered; (iii) surface key knowledge gaps; and (iv) propose actionable recommendations for preparedness, coordinated response, and medium-term recovery in cropping and horticultural systems. Consistent with the original study's emphasis on the human dimension, the session foregrounded people-centred recovery, the importance of trusted local networks, and the need for coherent, end-user-ready information that supports timely, practical decision-making.

## Methodology

### Facilitation Approach

The session employed structured group facilitation comprising brief plenary framing, small-group discussions, and whole-room consolidation. Participants captured inputs to four domains: (1) key elements that aided recovery; (2) surprises and challenges; (3) information still missing; and (4) key takeaways/learners. Notes were collected and thematically analysed to identify recurrent patterns, points of consensus, and divergences across stakeholder perspectives.

### Participants and Scope

Participants included growers and farm managers, industry advisors, sector bodies, researchers from multiple disciplines, and local/regional government staff involved in emergency response and recovery. The scope spanned arable and horticultural operations, with attention to catchment-scale issues (e.g., drainage, wetlands, erosion/runoff) and on-farm soil/crop management under silt deposition.

## **Data Treatment**

Session inputs (four documents of compiled notes) were coded into five analytic themes: catchment and environmental resilience; infrastructure and preparedness; governance and decision-making; data and information systems; and human/social factors. Cross-cutting issues (soil/crop recovery dynamics, contamination/food safety considerations, and financial/business continuity) were treated as sub-themes interwoven across the main categories. While qualitative in nature, these inputs build on prior case-study observations and provide practical priorities for future events.

## **Results: What Aided Recovery**

### **Catchment and Environmental Resilience**

Participants emphasised catchment-scale measures to reduce risk from heavy rainfall, including wetland restoration and creation, improved tile drainage, and attention to erosion management and runoff pathways. A recurrent view was that land use in high-risk zones should be reconsidered—or crop choices adapted—to align exposure with acceptable risk. Planning must consider sequential scenarios (e.g., post-event autumn drought or unusually wet winters), recognising compounding impacts on recovery windows and soil condition.

### **Infrastructure and Preparedness**

Basic continuity measures—generators, solar and batteries, secure food and fuel supply, and robust communications (e.g., Starlink, backup radio)—were critical. A pragmatic reminder was to plan for degraded conditions (“assume bridges, power, and Wi-Fi may be down”). Civil defence drills should incorporate diverse agricultural scenarios. Participants highlighted airports (e.g., Wairoa) and coastal shipping as enabling logistics when roads are compromised, emphasis on maintaining this capability.

### **Governance, Decision-Making, and Networks**

Local decision authority was seen to accelerate response and resource allocation. Pre-established procedures, contact lists, and networks reduced stress. Sector collaboration (e.g., Horticultural Advisory Group with the Hawke’s Bay Regional Council) supported uniform messaging and coherent action. Trusted advisors (AgFirst, Fruition, ag-chem reps) played a pivotal role connecting growers to accurate, timely intel, and facilitating peer-to-peer learning (e.g., sharing lessons from Cyclone Bola). A strong theme was the call for a single, end-user-centric information base, allowing growers to “plug-and-play” practical guidance.

### **Data, Information Management, and Science Translation**

Participants noted a huge knowledge bank and willingness to share, yet data accessibility and timing often fell short. Recovery improved with good data collection, analysis, and sharing, but required clarity on what to collect and capacity to collect. A recurring need was plain-English science translation and curated guidance tailored to grower decisions (e.g., soil/silt management, contamination thresholds, crop sequencing).

## Human and Social Factors

The facilitation reaffirmed people-first priorities: mental health support, empathetic communication, and acknowledging grower expertise and lived experience. Direct conversations with those who “had been there” (e.g., Bola) provided confidence and context. Willingness to accept help and collaborative relationships built pre-event materially aided recovery. Above all, participants stressed patience to avoid missteps under urgency.

## Results: Surprises and Challenges

### Scientific Knowledge and Communication

Stakeholders were surprised by both the extent of scientific mobilisation and areas where evidence contradicted perception. Gaps included having clear guidelines (e.g., cover crop requirements under silt; biological aspects of sediment beyond earthworms) for recovery, and the difficulty of making science based recommendations actionable for diverse end users. Laboratory capacity constraints emerged as a bottleneck for timely analysis.

### Infrastructure and Systemic Preparedness

The event exposed fragilities in critical infrastructure—bridges, power, and communications—and highlighted uneven backup systems at farm and regional scales. Road network disruptions complicated logistics, while institutional inertia sometimes favoured rebuilding “as before” rather than adapting.

### Soil and Crop Recovery Dynamics

Production rebounded faster than anticipated in many areas; modified soils (new silt substrates) often supported crops better than feared; and pH tended to normalise relatively quickly. However, not all interventions worked: incorporating organic matter into sandy silt sometimes induced a pan effect, hindering root penetration. The consistency of new substrates varied, necessitating careful, site-specific management. Stone fruit intolerance of wet feet was reaffirmed, and small-seeded crops and peas were successfully reintroduced within ~2 years, contingent on seasonal weather.

### Event Response, Risk, and Sequencing

Ongoing wet weather and successive events (notably in Tairāwhiti) delayed field access and planting. Floodwater testing was limited, drawing attention to food safety protocols and risk communication. Participants called for scenario planning (e.g., different storm timing, more wind) and underscored self-care and patience as foundational first steps.

### Social and Institutional Dimensions

Coordinating research and industry groups into a coherent plan remains a priority: while collaboration was achieved room to improve persists—particularly around one source of information and coordinated science translation.

## Results: Information Still Missing

### Centralised Information Architecture

Participants called for a national hub with regional portals—a centralised repository integrating Civil Defence, Rural Support, sector bodies, and science providers. This platform should deliver strategic direction on where information is stored and how it is accessed, with clear leadership, defined roles, and consistent messaging.

### Preparedness and Coordination Frameworks

Needs include pre-set cross-sector groups to collaborate during peace time, response agreements with government pre-event, and industry-wide flood preparedness sessions on a 3–5-year cycle. The community asked: What does a first-response kit look like (content, size, weight)? How can unimpacted community members be enabled to help safely and effectively?

### Soil, Silt, and Crop Resilience Data

Priority research questions span silt saturation over time, soil-type-specific responses, soil microbial dynamics post-flood, and recovery timelines by crop/soil health/soil type (ideally longitudinal studies building on baselines). Clarifications on contamination thresholds (e.g., whether 30 cm above floodline is a reasonable fruit limit) and food safety outcomes for crops grown in previously contaminated soils are needed. Comparative data across sector groups (apples/pears versus others) should be harmonised.

### Business Continuity and Financial Clarity

Stakeholders requested clear, practical financial information (e.g., forms of relief—cash, loans, tax breaks—linked to land damage and usability) and insights on what support growers need to survive the first 12 months while operations restart. Questions around electricity and communications continuity, rainfall data granularity, and storm scenario modelling were flagged as foundational to business risk planning. There was interest in whether research can inform funding allocations for future events, enabling targeted, evidence-based support – now that we know the rate of recovery could future governments use this information to support decisions.

## Discussion

The facilitation session confirms that resilience must be considered across all levels: field-level soil/crop decisions are inseparable from catchment hydrology, critical infrastructure, institutional governance, and information systems. The most actionable cross-cutting insights include:

1. **One Source, Many Contributors:** Recovery accelerates when trusted, unified messaging exists. A single industry base—curated by cross-sector leadership and supported by local, trusted advisors—can streamline data collection, advice dissemination, and decision support for growers under stress.

2. **Preparedness by Design:** The system should pre-configure relationships, response agreements, and drill routines (including agriculture-specific scenarios). First-response kits, backup power/comms, and logistics through alternate modes (air, coastal shipping) must be planned ex-ante.
3. **Science Translation and Capacity:** Rapid recovery requires plain-English guidance, decision tools, and laboratory capacity for timely diagnostics. Translational products should be end-user-centric—brief, actionable, and linked to risk thresholds (e.g., pH behaviour, silt depth options, contamination guidance).
4. **Adaptive Soil and Crop Management:** Evidence from the session suggests outcomes were less catastrophic than initially feared in many contexts; however, local variability is high. Management should avoid generic prescriptions and focus on site-specific diagnostics (e.g., substrate consistency, potential pan effects, root structure development, cover crop choices). Patience and sequenced action (pause, assess, then implement) remain critical.
5. **Human-Centred Recovery:** Mental health support, empathetic communication, and recognition of grower expertise are central. Peer learning (including historical analogues like Bola) provides confidence and calibrates expectations during uncertainty.

## Recommendations

1. **Establish a National–Regional Information Hub:** Create a central repository with regional portals, governed by a cross-sector steering group (sector bodies, Civil Defence, Rural Support, research providers, councils). Provide uniform, end-user-ready guidance, data dashboards (rainfall, silt depth, access), and plain-English protocols (contamination, soil management, first-response checklists).
2. **Formalise Cross-Sector Preparedness:** Pre-set response agreements between government agencies and sector groups; define roles/responsibilities and decision authorities for local leaders. Run agri-focused civil defence drills and industry flood-preparedness sessions on a 3–5-year cycle, including degraded-infrastructure scenarios (bridges, power, Wi-Fi).
3. **Invest in Science Translation and Lab Capacity:** Fund translation teams to produce concise decision aids, risk threshold tables, and crop-specific recovery guides. Expand laboratory throughput and regional sampling networks to reduce turnaround times for soil, water, and microbial diagnostics.
4. **Advance Soil/Silt Resilience Research:** Commission longitudinal studies tracking silt saturation, soil microbiology, pH dynamics, and crop performance across soil types and silt depths.
5. **Clarify Food Safety and Contamination Guidance:** Produce clear, evidence-based thresholds (e.g., fruit above floodline height, time since inundation, rainfall/sun dilution effects), co-authored by food safety authorities and sector experts. Provide communication templates for growers and processors to address market and regulatory concerns swiftly.
6. **Enable Business Continuity:** Publish plain-language financial guidance mapping relief mechanisms (cash, loans, tax, grants) to damage classes and usability constraints. Coordinate bridging support for the first 12 months, aligned to typical re-establishment

timelines by crop/region. Encourage alternate logistics (airport/coastal shipping) and redundant comms/power solutions for farm businesses.

7. Strengthen Local Trusted Networks: Support resource catchment-based groups and advisor networks to function as trusted communicators and peer-learning facilitators. This may require training and resourcing organisations for non-business as usual services. Recognise and integrate grower knowledge into formal protocols; include growers in decision forums and scenario planning.

## Conclusions

The group facilitation session at the Cyclone Gabrielle Research Symposium underscores that resilience in cropping and horticulture depends as much on people, networks, and information systems as on physical infrastructure and agronomy. Recovery was aided by local leadership, trusted advisors, and pragmatic preparedness (power, comms, logistics). Surprises included faster-than-expected production recovery and soil pH normalisation, alongside pockets where interventions (e.g., organic matter incorporation in sandy silt) created unintended constraints.

Looking forward, the sector's resilience will be strengthened by: (i) a national–regional information hub delivering coherent, end-user guidance; (ii) pre-configured cross-sector agreements and drills; (iii) science translation backed by lab capacity; (iv) longitudinal, site-specific soil/silt research; (v) clear food safety protocols; and (vi) financial clarity for business continuity. Above all, embedding human-centred recovery—mental health, patience, and recognition of grower expertise—will ensure that technical strategies land effectively in practice.

The cyclone experience, coupled with sustained collaboration across sectors, offers a pathway to faster, safer, and smarter recovery when future events occur. The challenge now is to convert these lessons into standing capabilities so that preparedness is woven into everyday operations, not improvised under duress.

## Acknowledgements

We acknowledge the growers, advisors, researchers, and local/regional authorities who contributed insights during the Cyclone Gabrielle Research Symposium, this document is a summary of their collective thoughts.

## Notes on Limitations

This report synthesises qualitative facilitation outputs rather than a statistically representative survey. Findings should be interpreted as practice-informed priorities to guide future preparedness and research, and complemented by targeted quantitative studies.