GS1 Australia – Draft Submission for Review

National Biosecurity Reform Agenda

Consultation closes 5 pm AEST, 12 June 2026

About this submission

GS1 Australia is a neutral, not-for-profit standards organisation and the Australian member of GS1, the global body that maintains the identification and data-exchange standards used across supply chains worldwide - the barcodes, location identifiers and data standards that let trading partners, regulators and logistics systems refer to the same product, place or party without ambiguity.

This submission responds to the National biosecurity reform agenda discussion paper (the discussion paper). It is offered in a supportive and constructive spirit. Our focus is deliberately narrow: we describe the enabling infrastructure - shared identification and data-exchange standards - that many of the proposed reforms quietly depend upon, and what becomes possible when that layer is treated as a foundation rather than rebuilt inside each reform.

We do not take positions on matters properly for industry and government - how reforms should be funded, who should lead them, or the choices individual sectors should make. Those are questions for industry associations, producers and governments. Our contribution is to make clear what the standards make possible, so those decisions can be made with the infrastructure picture in view.

Which parts we address. The discussion paper invites respondents to opt in or out of each part. This submission addresses **Part 1** (overall prioritisation and sequencing); selected themes in **Part 2** (preparedness, response, recovery, operations, legislation and regulation, and funding); and **Part 3** (implementation and governance). We do not comment on the workforce theme, which is outside our expertise.

Summary of key points

1. Most reforms in the paper are *outcomes* - faster response, proof of area freedom, national surveillance and data sharing, plant-product traceability, harmonised regulation, and trading-partner confidence. None is self-executing. Each rests on a prior ability to identify, consistently and unambiguously, **who, what and where** - and to exchange data about them across systems not built to connect.

2. That identification-and-exchange layer is **critical national infrastructure for biosecurity**, and we suggest it be treated as such - with the deliberate investment, governance and resilience the country already applies to comparable capability - rather than folded into a “technology and data” sub-task inside each reform.

3. This is *not* a call for new or proprietary technology, nor for a single national database. The relevant standards are open, international and already used in Australian agriculture and logistics; the architecture is **federated** - existing registers (state PIC systems, the NLIS, geospatial platforms) stay where they are, under their existing owners, made interoperable through common standards.

4. The economics favour it. Get the foundation right once and many reforms become tractable together; leave it implicit and the reforms risk reproducing the very fragmentation they aim to remove. It is a prevention-and-early-detection asset, where the Government’s own figures show the strongest returns.

Part A - The enabling-infrastructure case

1. Alignment with the National Biosecurity Strategy

The discussion paper sits within the National Biosecurity Strategy (NBS) and its six priority areas. The sixth priority - "Integration supported by technology, research and data" - is, in effect, a commitment to the enabling layer this submission describes: a more connected, science-based system that supports timely, informed, risk-based decisions. [2]

The Commonwealth's own roadmap reinforces this. The DAFF Biosecurity 2030 Roadmap names Technology - "an integrated, secure, data-driven and technology-enabled biosecurity system" - as one of five enablers, and identifies as core system challenges that technology systems were not built for today's complex supply chains and that the system cannot yet extract full value from available data. [3] Shared identification standards speak directly to both.

> **In short**
> The enabling-infrastructure case is not external to the strategy. It is the practical expression of an NBS priority and a Roadmap enabler that governments have already agreed.

1.1 From "technology and data" to critical digital infrastructure

We offer one framing suggestion we think materially strengthens the reform agenda. At present the enabling layer tends to be folded into a "technology and data" category. Framed as technology, it reads as tooling each reform can procure for itself. Framed correctly, it is shared national infrastructure: the registries, identifiers and verification services every reform draws on, much as they all draw on diagnostics, laboratories or the border.

This is not a rhetorical flourish. Australia already treats comparable capability as critical infrastructure. The Security of Critical Infrastructure Act 2018 (Cth) and the 2023 Critical Infrastructure Resilience Strategy define critical infrastructure to include supply chains and information and communication networks whose loss would significantly affect national wellbeing, and the regime's eleven sectors already include data storage or processing and food and grocery. [15] We are not suggesting biosecurity registries be legally designated under that Act. We are observing that the mindset the country applies to critical infrastructure - deliberate investment, clear governance, resilience by design - is the mindset this layer warrants.

Elevating it this way settles three design choices the roadmap will otherwise re-litigate reform by reform:

- **Architecture - federated, not centralised.** Harmonised public and private registries that interoperate, each owned and maintained by its issuing authority. Nothing is pooled into a single database; authority over each record stays with the body that holds it.
- **Function - registries, discoverability and verification.** Beyond holding records, the infrastructure must let authorised parties discover that relevant information exists and resolve it across systems, and verify that an identifier or credential is valid and authoritative. "Data sharing" understates this: discoverability and verification are distinct, and both are essential to a fast, trusted response.
- **Basis - global standards our trading partners use.** Registries and credentials should rest on open global standards, and the national standards aligned to them, so Australian data is legible to the markets we sell into. Building on home-grown conventions alone would solve the domestic problem while leaving the market-access problem untouched.

Why this framing matters for prioritisation (Part 1)

Treating the enabling layer as critical digital infrastructure, rather than as a sub-task inside each theme, lets it be sequenced and resourced once, as a foundation - and names the design choices the reforms would otherwise resolve individually and inconsistently.

2. Why this matters - grounded in the evidence

We have anchored this submission in the Australian Government's and CSIRO's published evidence rather than assertion.

2.1 The value at stake, and the cost asymmetry

- A fit-for-purpose biosecurity system is estimated to deliver around **$314 billion in benefit over 50 years** (CEBRA, cited by DAFF). [4][5]
- Invasive species already cost Australia roughly **$25 billion a year and growing** - about $390 billion over six decades (CSIRO and the Centre for Invasive Species Solutions). [6]
- For established pests and weeds alone, ABARES finds producers spend about **$3.8 billion a year on control** and bear roughly $1.5 billion a year in production losses. [7]

The discussion paper and the Roadmap both make the central point explicit: response, management and recovery cost far more than prevention. [3] Enabling infrastructure is a prevention-and-early-detection investment; its return is measured against these avoided costs - the difference between a tightly drawn, quickly resolved incursion and a slow, broad, expensive one.

There is also direct evidence for the value of the standards layer itself. A 2025 Centre for International Economics (CIE) whole-of-economy analysis estimated that GS1 supply chain standards currently contribute $19–27 billion a year to Australia's GDP, and that broader adoption could lift this to $36–50 billion a year. [12] That gap is, in part, the same enabling capability the biosecurity reforms depend on.

The same infrastructure underpins food recall and food safety, where the cost asymmetry is equally stark. When a contamination or mislabelling event occurs, the ability to identify exactly which products, batches and locations are affected is what allows a recall to be fast and tightly targeted rather than slow and broad - limiting the volume withdrawn, shortening the time at risk to public health, and protecting unaffected producers. [13] Biosecurity, food safety and recall are, at the infrastructure level, the same problem: knowing precisely what is affected, where it is, and where it has been.

2.2 A worked illustration from DAFF's own experience: sea containers

The Commonwealth Biosecurity 2030: Action Plan 2023 describes the department building "a single and reliable source of data on container arrivals into Australia" - because it did not have one - in order to associate pest detections with the relevant cargo, containers and vessels. In the same period, around 73% of khapra beetle interceptions were attributed to sea container contamination. [8]

This is the thesis in miniature. The department could not act effectively until it could reliably identify and connect the things moving through the system. The data-and-identification layer was the precondition, not an optional extra. The same logic applies, at national scale, across the reforms in this paper.

2.3 Where the evidence base could be strengthened

We note candidly that while the cost of incursions is well quantified, the benefit of shared identification and data-exchange infrastructure specifically is not yet separately measured in the published Australian work. ABARES' biosecurity economics program is well placed to do this. [9] The national capability assessment

proposed under the Operations theme is the natural opportunity to commission that analysis, so future investment decisions can weigh the enabling layer on the same evidentiary footing as other measures.

3. A worked example: harmonising property and location identification

Property and location identification is the clearest, most developed illustration of the enabling layer - and it sits precisely where biosecurity and trade meet. It also shows the cross-jurisdictional inconsistency the reform agenda seeks to remove.

Today a single farm is known by a state-issued Property Identification Code (PIC) for biosecurity and livestock traceability, by a member number in one or more industry registries, and by other identifiers besides. The PIC itself is issued and governed differently in each jurisdiction: in South Australia under the Livestock Act 1997, in Queensland only after separate registration as a biosecurity entity, and in Victoria extended to a separate "plant PIC" for prescribed crops under the Plant Biosecurity Regulations. [16][17][18] Each identifier does its job inside its own system. None is designed to be recognised outside that context - by an exporter, a freight company, an interstate counterpart, or another jurisdiction's biosecurity agency.

A globally recognised location identifier - in the GS1 system, a Global Location Number (GLN) - is the identifier that works across systems and borders. It sits alongside existing identifiers, not in place of them: the PIC remains the system of record for domestic biosecurity and the NLIS; the GLN extends recognition of the same property into national and international supply chains. Both point to one property record, kept aligned automatically.

> **The principle, generalised**
> Registries identify who and where, and stay owned and maintained by their issuing authority. A shared, cross-cutting identifier resolves between them. Geospatial platforms render the picture. The shared identifier is the connective tissue - it lets a property recorded in a state register, an industry system and a national biosecurity console refer unambiguously to the same place. Existing investment is preserved and made interoperable, not displaced.

Two points matter for the reforms in this paper, and both are already addressed in practice. First, **data control and privacy**: only the minimum attributes needed to register a location are shared; additional information an agency collects stays in its own systems under its own governance. GS1 Australia's National Location Registry is subscriber-only - not openly searchable - and was certified compliant with the National Farmers' Federation Australian Farm Data Code in 2024, with authorised access available for biosecurity and emergency-response purposes. [10]

Second, **it builds on what exists**. Australia already operates a mature national livestock identification and traceability capability through the NLIS, now being extended to mandatory electronic identification (eID) for sheep and goats - commenced nationally on 1 January 2025 and moving to full national implementation by 1 January 2027 under the National Biosecurity Committee's own Sheep and Goat Traceability Task Force. [11][19] Harmonised location identification complements that foundation and the discussion paper's own traceability reforms for cattle, sheep, goats and - prospectively - plant products.

> **A live test of the thesis - sheep and goat eID**
> The eID rollout is exactly the kind of reform the paper proposes, already underway - and it shows both the value and the fragmentation risk. The national commencement date is common, but the supporting instruments are not: SA amended its Livestock Regulations 2013, the NT is amending its Livestock Act 2008, and rebate schemes, scanning deadlines for saleyards and processors, and compliance dates differ

by jurisdiction. [19][23] For producers and agents who operate across state lines, that is precisely the duplication a shared identification layer is meant to reduce. The practical question for industry associations: are your members being asked to meet the same requirement several different ways?

4. Extending the principle: trade items, conformity and market access

Property and location identification is one rung on a capability gradient. The same standards identify parties, locations, consignments, products and batches. How far along that gradient any sector chooses to go - and how it funds and governs the move - is properly a matter for that sector and government. What we can describe neutrally is what each level enables.

4.1 Granular trade-item identification

Identifying not just the property but the consignment, product and batch is what lets a pest detection, a treatment record, or a containment or recall be attached to a specific thing rather than a broad category. This is where the cost asymmetry of Section 2 is realised: precise identification supports a tightly drawn response zone and a targeted recall, instead of a wide, slow and costly one. The benefit grows with granularity - which is exactly why the level of granularity is a decision for each sector to weigh.

4.2 Conformity, mutual recognition and the changing shape of market access

Once locations and items carry globally recognised identifiers, conformity attestations can be exchanged and trusted across borders: that a consignment was treated at an accredited facility, originates from a recognised area of freedom, or meets an importing country's requirement. This is the connective tissue beneath mutual recognition arrangements and the trade-facilitation half of the biosecurity task - the half that underwrites premium prices and market access.

This is becoming urgent. Around the world, market access is shifting from tariffs toward information requirements - non-tariff measures that ask, in effect, "prove what this product is, where it came from, and how it was handled." The clearest signal of direction is the European Union's Ecodesign for Sustainable Products Regulation (Regulation (EU) 2024/1781), in force since July 2024, which introduces the Digital Product Passport and phases in product-level data obligations through delegated acts from 2026, applying to goods placed on the EU market including those made outside the EU. [14] Agri-food is not in the first wave (batteries, textiles and electronics lead), so this is a direction-of-travel point rather than an imminent obligation - but the mechanism behind it is exactly the foundation this submission is about. Building that foundation for biosecurity is the same investment that keeps Australian producers eligible for premium markets as those markets raise the data bar.

The practical bottom line for industry

The reforms succeed for industry only if they reduce duplication, enable precise rather than blunt responses, and position producers to meet rising international data requirements. A fair test for every proposed reform: does it make a concrete difference to members' cost and competitiveness - or add another layer of reporting?

5. Where the enabling layer is most load-bearing

The table below maps the principle to the reform themes and discussion questions where, in our view, it is most directly relevant. It is offered to assist the Committee's prioritisation and sequencing (Part 1), not to rank the reforms ourselves.

Reform theme / question	How shared identification & data-exchange standards enable it
Preparedness - surveillance data sharing; plant-product traceability (Q2.2, 2.3)	Common location and item identifiers are the precondition for surveillance data to be combined across jurisdictions and for traceability to function end to end. Effective data sharing depends first on agreement about how the things being described are identified.
Response - faster, harmonised, evidence-driven (Q3.2, 3.3)	Resolving a property, consignment or batch to one identifier across agencies lets a response be coordinated without first reconciling competing schemes - supporting tighter zones and quicker action, where the avoided-cost economics are greatest. This is directly relevant to the EPPRD, EADRA and NEBRA arrangements the paper proposes to update.
Recovery (Q4.2, 4.3)	Knowing precisely which properties and businesses are affected - by a shared identifier rather than a manual cross-match - lets recovery support and any owner reimbursement be targeted accurately and quickly.
Operations - earlier data sharing; legislative barriers; capability assessment (Q6.2, 6.3)	The Operations theme already names timely data sharing and a national capability assessment. A common identification layer is the most reusable element of that capability; the capability assessment is the natural place to evaluate and cost it.
Legislation & regulation - inconsistency; impediments to domestic trade (Q7.2)	Inconsistent identification across jurisdictions is itself a source of regulatory complexity and friction in domestic trade. Harmonised identifiers reduce duplication directly, complementing legislative harmonisation.
Funding - "critical national biosecurity infrastructure" (Q8.2)	The discussion paper and prior action plans already frame funding of "critical national biosecurity infrastructure and systems." Shared identification infrastructure is a strong candidate for that designation; cost-sharing principles could explicitly recognise it.

Part B - Responses to the discussion-paper questions

The questions below are reproduced *verbatim* from the discussion paper. Each is followed by a draft response. Where a question is outside GS1's expertise (for example, workforce, or the internal sequencing of sectoral arrangements) we have not answered it. Industry associations and members are welcome to use or adapt any of these responses in their own submissions.

All responses in draft and readers are welcome to adopt and adapt where appropriate.

Part 1 - Overall prioritisation and sequencing

1.1 Do the proposed reform themes adequately address the strategic risks?

The themes are well chosen and map sensibly onto the six agreed strategic risks. We suggest one cross-cutting addition: explicit recognition that shared identification and data-exchange infrastructure underpins preparedness, response, recovery, operations, legislation and funding alike. Treating it as a foundation, rather than as a sub-element repeated within each theme, would reduce duplication and improve sequencing, and would speak directly to the "operational capability" and "legislation and policy" strategic risks at once.

1.3 Do you consider any proposed reforms to be dependent on others in different themes being delivered first, and why?

Yes. The surveillance data-sharing reforms (Preparedness), the traceability reforms (Preparedness), and the operational data-sharing reforms (Operations) share a common dependency: a consistent way to identify the properties, locations and items the data describes. Sequencing that foundation early would reduce rework in the reforms that follow. As a concrete example, the proposed national traceability system for plant products will be far cheaper to build, and far more useful, if it adopts the same location-identification approach already used for livestock rather than inventing a parallel scheme.

1.4 What opportunities exist to leverage partnerships for better outcomes?

Standards bodies, industry registries and government registries each hold part of the picture. Neutral, open standards are a natural basis for partnership because they let each party extend the reach of its own data without ceding control of it. Existing government-industry partnership structures - the EPPRD and EADRA response deeds, Plant Health Australia, Animal Health Australia, Integrity Systems Company and the Sheep and Goat Traceability Task Force - are proven vehicles for exactly this kind of shared, standards-based work. [11][19] GS1 Australia is a not-for-profit and is willing to contribute its standards expertise.

1.5 Are there any significant barriers or risks that could limit the effectiveness of these proposed reforms?

The principal risk we observe is fragmentation by default: reforms each developing their own identification and data approaches, reproducing the inconsistency the agenda seeks to remove. The PIC example in Section 3 - the same property identified and governed differently in each jurisdiction - shows how easily this happens even within a single, mature national system. A second risk is treating data sharing as a governance or legislative problem alone, when it also requires agreement on how the underlying entities are identified: legislative authority to share data does not, by itself, make the data usable across systems.

Part 2 - Selected theme questions

Preparedness

2.2 Are there significant gaps in national surveillance and preparedness coordination?

In our area of expertise, the most consequential gap is the absence of common reference data - agreed, unambiguous identifiers for parties, locations and items - across the systems that surveillance must draw on. Without it, combining detections, movements and treatment records across jurisdictions requires manual reconciliation, which is slow and error-prone precisely when speed matters most. The sea-container experience in Section 2.2 is the Commonwealth's own illustration of this gap.

2.3 What would effective data sharing for preparedness look like to you?

Effective data sharing begins with shared reference data: agreed identifiers for parties, locations and items, so data from different sources can be combined without manual reconciliation. Governance and legislation enable sharing; consistent identification makes the shared data meaningful. In practice it also requires discoverability (knowing relevant data exists and where to resolve it) and verification (trusting an identifier or credential is authoritative) - not just transmission.

Response

3.2 What are the most significant gaps you observe in current national biosecurity response arrangements?

From an infrastructure standpoint, the most significant gap is the inability to resolve an affected property, consignment or batch to a single identifier recognised by every agency involved in a response. Australia's national response is delivered through three separate but related deeds - the Emergency Plant Pest Response Deed (EPPRD, custodian Plant Health Australia), the Emergency Animal Disease Response Agreement (EADRA, custodian Animal Health Australia), and the National Environmental Biosecurity Response Agreement (NEBRA). Each has its own signatories and systems. Where the same location or consignment is recorded differently across them, coordination begins with reconciliation rather than action. The discussion paper's proposal to update environmental and plant arrangements "considering consistency with animal response arrangements" is a natural place to adopt common identifiers as the connective tissue between the deeds. [The NEBRA is itself in its second five-year review, with public consultation having run February–April 2026 - a timely opportunity to embed this.]

3.3 What changes could be made to improve emergency response arrangements?

Adopt a common location and item identification approach across the EPPRD, EADRA and NEBRA so that a single detection resolves to the same property, consignment or batch in every system, enabling tighter response zones and faster owner reimbursement. This is a low-regret, additive change: it sits alongside existing identifiers and deed structures rather than replacing them, and it directly supports the "faster, harmonised, adaptable and evidence-driven" response the paper seeks.

Recovery

4.2 What are the most significant gaps you observe in current biosecurity recovery arrangements?

Recovery support and owner reimbursement can only be as accurate and timely as the system's ability to identify exactly which properties and businesses are affected. Where that identification relies on manual cross-matching between schemes, recovery is slower and more contestable. A shared identifier makes targeting precise and auditable - which matters both for the affected and for the integrity of cost-shared funds.

Operational capability and capacity

6.2 What are the most significant operational capability or capacity gaps limiting prevention, detection, response or recovery (e.g. workforce diagnostics, digital systems)?

Among digital-system gaps, the most reusable to fix is the absence of a common identification layer. It is the single element drawn on by prevention, detection, response and recovery alike, so investment in it returns value across all four. We suggest the proposed national capability assessment explicitly scope and cost this layer, rather than leaving each reform to provision its own.

6.3 What are the legislative or system barriers that most limit effective data sharing?

Beyond legislative authority to share, a practical barrier is the absence of common identifiers across systems. Where the same property or consignment is recorded under different schemes, sharing the data does not, by itself, make it usable. Adopting open, harmonised identification standards is a concrete, low-regret step that complements legislative reform - and can begin within existing legislative arrangements, as the Operations theme itself contemplates.

Legislation and regulation

7.2 Where have you experienced the greatest regulatory complexity? What changes are required to regulations to ensure they are consistent and to reduce this complexity?

Inconsistent identification and data requirements across jurisdictions are a recurring, practical source of complexity for businesses operating nationally. The PIC system is the clearest example: a single enterprise operating across state lines navigates different issuing Acts, different entity-registration prerequisites, and separate plant and livestock PIC regimes, for what is conceptually one property. [16][17][18] Harmonising identification standards - so a property or product is described the same way everywhere - reduces that complexity directly and supports the paper's domestic-trade objectives, without requiring any jurisdiction to surrender control of its own register.

Funding

8.2 What are the most significant gaps you observe in national biosecurity cost-sharing arrangements or funding mechanisms?

We do not take a position on cost-sharing settings, which are properly for industry and government. We observe only that shared identification infrastructure is a cross-cutting asset that no single theme "owns," which makes it easy to under-fund when each reform budgets separately. The proposed national cost-sharing principles could explicitly recognise critical digital infrastructure as a shared, fundable category - consistent with prior action plans' references to "critical national biosecurity infrastructure and systems."

Part 3 - Implementation and governance

9.1 How should reform initiatives be organised under the NBS to support effective delivery (e.g. through national priorities, targeted initiatives or other ways)?

We suggest identifying the enabling layer as a distinct, cross-cutting critical digital infrastructure foundation - expressed through the "Integration supported by technology, research and data" priority, but elevated above the level of an ordinary initiative within it. Treating it as shared infrastructure (federated registries, discoverability and verification, on a global-standards basis) lets every dependent reform reference a common foundation rather than each rebuilding it, and signals that it warrants deliberate investment, governance and resilience.

In closing

Australia's biosecurity system protects extraordinary value, and the cost of getting prevention and early detection right is small against the cost of incursions. The reforms in this paper are sound. Our single, constructive message is that many of them rest on a shared foundation - the ability to identify who, what and where, consistently, and to exchange data about it across systems and borders.

That foundation already has open international standards and is already partly in place in Australian agriculture and logistics. Making it explicit - and resourcing it as critical national infrastructure - would let several reforms succeed together, reduce duplication, and strengthen both biosecurity protection and market access. The strategic choices about how to do this rightly belong to industry and government. We offer our standards expertise to support whichever path they choose.

GS1 Australia welcomes the opportunity to discuss any aspect of this submission with the National Biosecurity Committee and the Department.

Contact for more information

For more information on this submission please contact

Peter Carter - GS1 Australia – General Manager Public Policy and Government Engagement

E: peter.carter@gs1au.org M: 0418 231 997

Neil McSkimming – GS1 Australia - Director - Primary Production

E: neil.mcskimming@gs1au.org

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