GRAIN INDUSTRY **STEWARDSHIP FRAMEWORK** FOR NEW TECHNOLOGIES

An industry stewardship approach to new technologies Utilising the *Market Choice Framework*

An industry framework developed on behalf of the Australian Grain Industry by the Grain Trade Australia Plant Breeding Innovation Committee, the Information Technology Advisory Committee and the Trade and Market Access Committee.

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GRAIN TRADE AUSTRALIA

Grain Trade Australia (GTA) brings together participants from across the grain value chain to work to facilitate trade

1.0 Introduction

There is broad recognition within the Australian grain industry that new technologies have the potential to play a major role in helping the industry meet the demands of food, feed and industrial consumers and that the industry requires competitive access to this technology in which it has made a significant investment.

Technology can include:

1. Plant breeding innovation
2. Data and Information Technology (IT)
3. Grain Assessment Technology (grain quality & biosecurity)

The industry recognises that technology innovations have the potential to contribute to positive outcomes for governments, farmers, consumers and the environment. However, it also recognises the need for the grain value chain to come together to enable a dialogue that will support commercial products/tools/processes (and any required supporting frameworks) enter the value chain without disruption to trade.

Against this backdrop, the ability for the grain value chain to identify and address emerging regulatory compliance and market access issues, customer requirements and sensitivity around information and data is important as new technologies seek to be commercialised. Similarly, it is important for some forms of technology to be supported through frameworks that provide guidance and a certification process. This is particularly critical for technology that can be used to assess and quantify grain quality for segregation and sale.

Accordingly, GTA is aiming to work with all parties across the grain value chain to develop a collaborative approach for the purpose of:

1. Promoting information sharing on technologies being developed for commercial application in the grain industry to avoid/minimise any trade disruption; and
2. Establishing criteria, certification and supporting frameworks for technology utilised in the grain supply chain.

a) Market choice framework

The Australian grain industry has established a *Market Choice Framework* (Framework) to assist the industry facilitate trade in relation to Genetically Modified (GM) crops. This Framework was developed with consultation across, and is supported by the grain value chain. The principles of this Framework are that it is:

- voluntary,
- non-prescriptive

It aims to provide guidance to the industry to assist:

- technology providers to understand industry requirements in relation to commercial products entering the value chain;
- the value chain in understanding market requirements; and
- how to manage seed and grain as it moves through the supply chain.

The Framework encompasses the elements that the industry sees as necessary for introduction of a GM crop in a manner that will be least disruptive to the supply chain including:

- stewardship, and
- domestic and international regulatory requirements
- supply chain processes to deliver market choice.

The capacity to deliver market choice is built on the comprehensive and world-class protocols and processes that already operate in the Australian grain industry to enable grains and grain products to meet regulatory and customer specifications. These protocols and processes provide the necessary product integrity that engenders confidence to consumers and governments.

GTA proposes to use the existing *Market Choice Framework* as a basis for a broader stewardship framework that can cover a range of innovations and new technologies.

An industry driven stewardship framework will assist to ensure appropriate and responsible use of technologies and assist to support consumer acceptance. New governance models may need to be discussed and developed to ensure access to future technologies.

The Market Choice Framework and associated technical guidance documents enable the innovation (technology, IT and breeding and seed) sectors to:

- engage with the grain value chain stakeholders to develop practical solutions to information- sharing about products seeking to be commercialised, and
- establish governance frameworks and
- technology certification for trade.

These approaches can help inform the development of an information sharing approach for other innovative products and technologies.

b) Innovation supports the Australian grain industry to meet consumer demand

New and improved technologies are a key driver of future sustainability and profitability of Australian agriculture, and important in enabling the grain industry to continually improve economic performance/ productivity; and meet the demands of food, feed and industrial consumers.

In addition to commercial drivers, there are several macro factors behind the growing momentum for adoption of technology and innovation such as:

- food and data security,
- sustainability,
- biosecurity,
- traceability, and
- climate change.

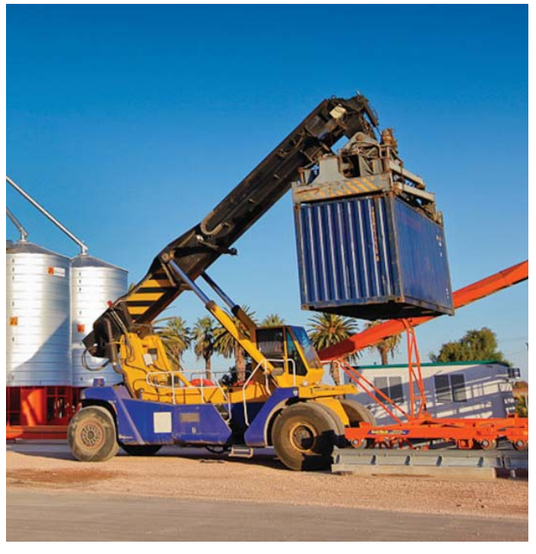
Emerging technologies can help growers and the industry meet and/or benefit from the rapidly changing desires and needs of consumers, as well as adapt to macro trends impacting natural resources and supply chains.

Today's consumers are placing increasing demands on the global food and fibre system. Consumers want to know where and how their food is grown, processed, packaged, and transported. There is a growing desire from consumers for transparency around issues such as food safety, health and wellness, and product discovery.

Consumer attitudes are also influencing the regulatory environment. Thus, understanding and, where possible, proactively identifying and mitigating perception issues is critical to ongoing access to innovative and new technologies.

Digital technologies including Artificial Intelligence have the potential to fundamentally transform the way food is produced, traded and consumed. However, there are a range of constraints to realising the full economic potential of digital applications including:

- availability of appropriate data for analysis, underpinned by suitable data governance arrangements including systems and protocols governing digital information that provide clarity on data ownership, control and access issues and facilitates data sharing between multiple participants
- availability of decision support tools and analysis capability to make use of the data acquired
- a lack of a clearly-defined value proposition to potential technology users.



Adoption of digital solutions could assist the grain industry:

- improve efficiency /effectiveness e.g. visual recognition technology, blockchain, etc
- meet market requirements around compliance reporting or demonstration of verifiable outcomes/claims (e.g. sustainability, carbon-neutral, etc.)
- optimise investments through collecting and enabling access to aggregated, industry-level data

The grain industry will continue to embrace new technologies, and it is important the industry demonstrates the responsible use of technology in order to capture and maintain community's trust and enables ongoing access to innovative technologies.

The industry needs to constructively engage with consumers to identify possible concerns and overcome barriers to adoption and establish governance, certification and supporting frameworks. As technologies are brought to market, understanding stakeholder perceptions and demonstrating responsible commercial usage of the technology is important to establish benchmarks, mitigate negative public perceptions; and to ensure access to technologies that will help the grain industry maintain global competitiveness, and prosper in a world of rapidly changing consumer preferences.

The proponents of technology also have incentive to ensure appropriate stewardship and responsible use due to the often-high cost of generating innovative technologies.

c) Access to innovation is becoming more challenging

The technology /innovation environment is becoming more challenging due to the:

- Growing complexity of non-tariff barriers impacting access to markets and innovation
- Inconsistent regulatory environments e.g., for plant breeding innovation lack of timely and predictable approvals and lack of global regulatory alignment
- Lack of science and/or risk-based policies/regulatory approaches
- Consumer concerns and uncertainty around science i.e. risks may not be accepted by consumers if not easily understood
- Frameworks and technology certification that support industry acceptance of emerging opportunities
- Lack of clarity around the value proposition for all stakeholders across the value chain

A framework that facilitates engagement with stakeholders will assist to both effectively communicate the positive attributes of technologies, manage negative perceptions that may arise and establish governance and certification requirements. This engagement needs to consider scientific, ethical, economic, and social/ environmental considerations.

d) An industry approach to stewardship will help to build confidence in adoption of new technologies

Stewardship can be described as the responsible management of a product/ technology through its life cycle. The proposed Grain Stewardship Framework is a shared approach that attempts to build engagement across the value chain throughout the life cycle. It is nonprescriptive and flexible to cover a broad range of technologies/ innovations, markets and impacts (economic, environmental and social).

The proposed Grain Stewardship Framework is not a prescriptive set of processes, but rather a set of higher-level principles that individual company/sector stewardship activities may align to. It is a communication tool that:

- demonstrates the industry's commitment to stewardship,
- builds trust and confidence with consumers and the community,
- enables ongoing access to innovation.

The Stewardship Framework is dynamic and will evolve over time building on the experience of the industry and adoption of continuous improvement practices which will inform the Framework and its application, thus enabling it to evolve in an evidence-based manner.

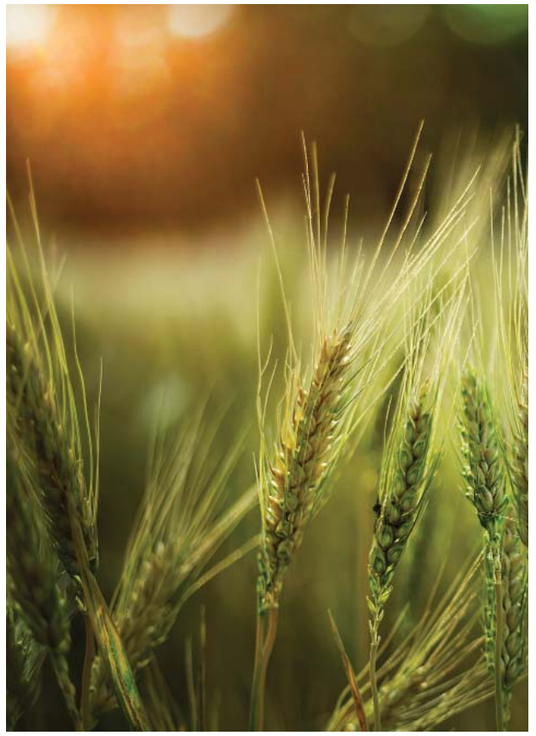
2.0 Purpose and outcomes

The industry is seeking to establish a Grain Stewardship Framework to support the introduction and effective utilisation of technology such as plant breeding; digital & information technology; and grain assessment technology.

The industry has established a *Market Choice Framework* to manage GM technology and the Stewardship Framework builds on the principles of this *Market Choice Framework*.

The purpose of the stewardship approach is to ensure facilitation of trade with adoption of various innovations/ technologies.

The principles of the *Market Choice Framework* have been adapted for promoting stewardship across a range of new technologies. It requires a collaborative approach across the value chain.



The *Grain Stewardship Framework* is a collaborative approach to facilitate adoption of technology/innovation in a manner that:

- Fosters access to innovative products/tools/processes by growers, the grain supply chain and consumers
- Minimises or avoids trade disruptions
- Enhances/supports regulatory compliance
- Supports market choice and customer/market access i.e. provides flexibility to meet differing stakeholder needs and regulatory scenarios globally
- Provides sustainable access to technology for farmers and the supply chain
- Enhances consumer confidence
- Facilitates sharing of best practices
- Provides a platform for future consultation as new technologies evolve and are adopted

The *Grain Stewardship Framework* will also assist the industry mitigate risks related to operational risks i.e. direct and indirect impacts on ecosystem, which can lead to lower productivity and higher production costs, and market/regulatory risks i.e. maintaining market access and reputation.

3.0 Aim

The aim of developing and implementing a *Grain Stewardship Framework* is to assist the industry to ensure access to and successful commercialisation of innovations. Specific objectives of implementing the Framework are to:

- Build trust and enhance transparency with the value chain and other stakeholders
- Support market acceptance and the availability of the product benefits to growers and consumers
- Facilitate an effective and efficient risk-based approach to managing supply chain and trade risks while meeting customer requirements
- Establish a process for information-sharing in relation to innovation applications
- Engage with the Government, as appropriate, to encourage practical and internationally aligned approaches
- Promote cooperation and information-sharing efforts that facilitate trade and mitigate disruptions
- Build effective dialogue and relationships to ensure early engagement around new products coming to market and build trust around the industry's capacity and innovation stewardship
- Provide transparency and predictability for supply chain participants, most notably importers and exporters.

The Framework will support these objectives through:

- Proactively highlighting development and management best practices to government officials, the value chain and stakeholder
- Promoting quality management systems for maintaining the integrity of new products/processes developed through innovation
- Acting as a guide and resource to technology developers that are new to the sector
- Supports the flow of trade by providing information to the value chain so that others can make informed decisions on what they view as appropriate based on their business model.

4.0 Framework

The *Grain Stewardship Framework* is not a prescriptive set of processes, but rather a set of higher level principles that individual company/sector stewardship activities align to. These principles are:

1. Flexible framework that works with a range of innovations/technologies and for industry participants across varying size, scope and location of operations

2. The Framework supports collaborative leadership that is engaged in industry-wide dialogue, grounded in science, and open to the full range of technology choices

3. The Framework will evolve over time i.e. as the Framework is applied to different innovations and by different parts of the supply chain, adoption of continuous improvement principles will ensure that the Framework will evolve and improve in an evidence-based manner over time

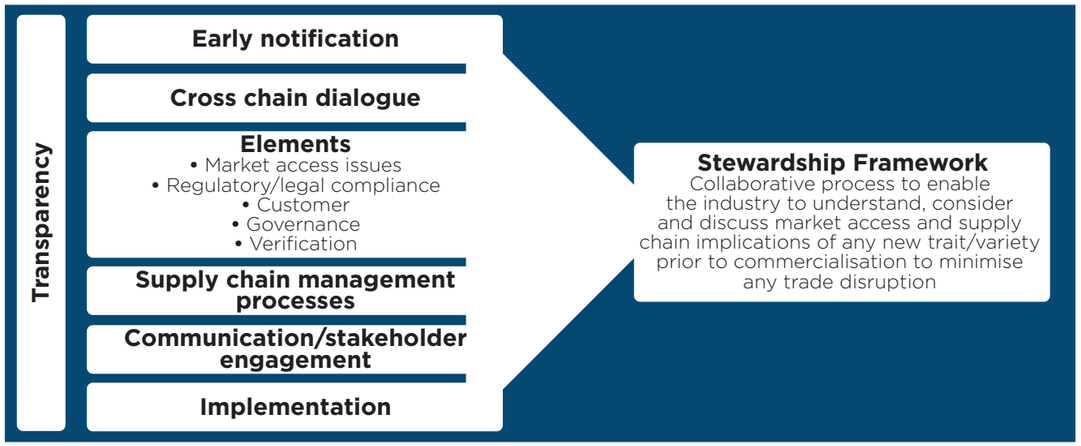
4. Guidance and best practices for supply chain activities will focus around three key areas including information sharing (stakeholder engagement), market access and trade considerations, and quality management

This broader document that presents the industry's *Market Choice Framework* for all GM grain and seed crops is built on a set of market choice criteria, namely pre-commercial release requirements for:

- Confirmation of Australian regulatory approvals
- Market assessment (customer requirements for choice)
- Market risk assessment & approvals
- Market risk mitigation (Low Level Presence/ Adventitious Presence)
- Market risk management protocols (stewardship)
- An Unintended Presence contingency plan

The Grain Stewardship Framework is shown in the figure below.

Grain Stewardship Framework



Grain Stewardship Framework

FRAMEWORK ELEMENT	REQUIREMENT
Early notification	It is preferable that the information- sharing dialogue occur as early as possible during the development of relevant technology, and in advance of commercial release. The timing and requirements will vary from technology to technology, but the intent is to provide sufficient time for market access issues to be identified, stakeholder engagement to occur, and supply chains to ensure they have processes in place to management the innovation.
Supply chain dialogue	The early notification will enable the supply chain time to review the implications from commercialisation of the technology and develop approaches to: • Manage risks • Supply chain operations • Build trust with consumers • Regulatory compliance
Market access	This part of the Framework is about ensuring that: • Australian regulatory approvals required are in place • Approvals in key exporting/importing markets are in place • Any potential market access or customer access disruptions that may need to be managed are identified
Regulation compliance	Similar to above this element is focused on ensuring that all necessary approvals are in place including across legal requirements, Government regulations, industry regulations and guidelines. Consideration of the use of these guidelines may include where: • Regulatory compliance requirements exist within Australia's domestic market that require market approvals • Regulatory compliance requirements exist in importing countries that require market approvals • Market/customer specifications exist which require pre-notification before import • And other specifications and/or requirements as may be agreed from time to time • Industry governance arrangements required to ensure interoperability between tools and systems, standardisation of data formats and frameworks, etc
Governance	Governance Depending on the nature of the innovation/technology, there may be requirements for activities such as: • Trading Standards development • Technical guidelines • Industry or policy processes e.g. data sharing rules, governance group, etc

FRAMEWORK ELEMENT	REQUIREMENT
Supply chain management processes	The industry has a range of stewardship programs and codes of practice or conduct in place. These enable sharing of relevant information and consultation for the seamless movement of product into and along the supply chain and, where and when appropriate, the management of non-compliance. Commercial contractual arrangements underpin supply chain operations and management. The Framework is non prescriptive but encourages industry participants to document stewardship programs and quality management systems currently in place. If required: • Supply chain participants develop and implement standards and processes to manage any market/customer risks e.g. closed loop/identity preserved if required • Technology developers should make available prior to commercialisation any support tools required • Supply chain participants develop and implement strategies to manage and integrate technologies e.g. data governance arrangements etc The Framework should evaluate the robustness of the stewardship plans and whether sufficient industry supply chain management processes are in place to manage any market access disruptions that may arise.
Communication/ stakeholder engagement	The industry recognises the need for ongoing awareness and dialogue around the use of new technologies, regulatory compliance and market access implications. This Framework will be supported by ongoing industry communication and stakeholder engagement activities. Stakeholder engagement and a communications strategy will be important to ensure that new technologies are understood as this will facilitate adoption. This component of the Framework will provide guidance for proactive engagement of the value chain and stakeholders. Key aspects for consultation to both obtain feedback and inform stakeholders will include: • market assessment and trade analysis • systems in place to comply with any marketing restrictions, domestically or in importing countries • need for any changes to standards, processes, protocols etc, • actions taken regarding any regulatory considerations for the product
Implementation mechanisms	Stewardship programs and quality management systems to verify that they meet Stewardship Framework goals.

5.0 Implementation

The *Grain Stewardship Framework* is about ensuring the industry's ability to deliver market choice. Globally, agricultural commodities are being increasingly differentiated in response to a range of drivers such as product safety, consumer preference, product traits, process traits and government regulation. Further, there are an increasing range of new tools and technologies to support industry efficiency of supply chains and practices, and to help meet customer requirements.

The Australian grain industry's supply chains are flexible and have the required capacity and capability for existing or new processes to incorporate and manage a broad range of new technologies and innovations.

It is important that stewardship programs supporting new technologies:

- are flexible and fit for purpose, cost effective, and incorporates the industry recognised best practices;
- support innovation and are scalable to meet the complexity and size of the participating organisations; and
- assist in the long-term viability and sustainability of the technology/ innovation and the products developed from it.

The Australian grain industry has relied on the adoption of innovation to secure its global competitiveness. The industry needs continued access to new technology to remain at the forefront.

Australia has a strong global reputation of delivering quality grain products that meet customer specifications and a solid track-record of ensuring that the requirements of both domestic and export customers are met.

The industry also recognises the potential for trade disruptions and/or supply chain risks to occur with new technologies that are not brought to market in a collaborative way, nor managed appropriately through their life cycle. Support for the Grain Stewardship Framework will ensure the Australian grain industry minimises risks and maximises opportunities offered by new technologies and innovations.

GTA's Plant Breeding Innovation Committee (PBIC) will seek further cross sector engagement with industry and Government and ensure engagement across the other relevant GTA Technical Committees.

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Schedule 1: Application of framework to gene-edited crops

ELEMENT	PROCESS	TRIGGER/ACTIVITY
Early notification	GTA meet annually with CBA and Croplife for update of developments and activities in relation to NBT trials/commercial developments. This annual meeting would also review the process to ensure it remains relevant and is continually improved as appropriate. Technology/breeding company advise GTA as early in process as possible but sufficiently ahead of commercialisation to identify and address market access issues and provide confidence to the supply chain.	Technology/breeding company direct contact to GTA Annual meeting Market/customer query Media
	GTA and proponent of the proposed variety/trait for commercial release enter into agreement around process for review including information that will be provided (refer Attachment I) and confidentiality.	Confidentiality agreement in place Information to be shared agreed.
Supply chain review	GTA nominated technical expert/s will liaise with the proponent of the proposed variety/trait for commercial release and will then undertake an assessment to identify: • Markets of interest • Regulatory compliance i.e. Australian approvals, key exporting/importing markets approvals • Market/customer specifications exist which require pre-notification before import • Any potential market access or customer access disruptions that may need to be managed are identified • Supply chain implications and industry governance arrangements applicable e.g. standards, supply chain management processes, industry or policy processes	Proponent provides agreed information to GTA nominated technical expert/s (TE) TE will review any material supplied and undertake consultation with the supply chain, customers and other parties as appropriate. TE provide direction on any potential market access impacts ie: • If there is likely to be any potential market access or customer access disruptions that may need to be managed • whether all relevant market access approvals are in place for importing countries of interest to Australia • robustness of the stewardship plans • industry supply chain management processes that may be required to manage any market access disruptions that may arise
	Based on information provided, the TE will either advise that: 1. conditions are in place, and thus no significant market access disruption is expected. 2. Market access issues may occur and/or changes to industry processes may be required i.e. if industry is not expected to be able to manage any market access issues arising (for example relevant market approvals are not in place) Subject to the outcome of TE's review and subsequent processes, a communication of relevant information and outcomes to the broader grain industry will be agreed and implemented.	If 1, GTA advises the proponent and the grain trade and no further discussion is warranted other than general industry updates and reporting as per existing industry practice If 2., the proponent will be advised and the TE will then in good faith, discuss the possible approaches to address any potential concerns with the proponent. A consultative process between the TE (GTA) and the proponent will be initiated to allow for further discussion and clarification of the disruptions and the preventative actions for implementation (if required). The outcome of the consultation will be an agreement on the proposed actions to be implemented (if required) and the scope and roll out of the information provided to grains industry stakeholders.

Schedule 1: Application of framework to gene-edited crops (cont)

ELEMENT	PROCESS	TRIGGER/ACTIVITY
Supply chain management processes	Based on the information provided from the previous step, GTA will work with the supply chain to ensure that the existing processes, codes of practice and other tools in place are adequate and/or review and modify as required. This could include activities such as: • Supply chain participants develop and implement standards and processes to manage any market/customer risks e.g. closed loop/identity preserved if required • Technology developers should make available prior to commercialisation any support tools required • Supply chain participants develop and implement strategies to manage and integrate technologies e.g. data governance arrangements etc	GTA review/manage through existing technical committees
Communication/ stakeholder engagement	In parallel to the steps above, GTA will develop a Stakeholder Engagement and Communications Strategy to ensure that the industry remains informed of developments as appropriate. Importantly this will also address communication with key markets and/or customers. This will include: • market assessment and trade analysis • systems in place to comply with any marketing restrictions, domestically or in importing countries • need for any changes to standards, processes, protocols etc, • actions taken regarding any regulatory considerations for the product	GTA develop Strategy through PBIC and GTA's Trade & Market Access Committee and then implement strategy

Attachment 1: Potential information sharing elements

The following information would assist in the evaluation of market access implications. An agreed list of information to be shared will be developed between GTA and proponent, noting that there may be confidentiality issues that restrict some information being provided in certain cases:

- The contact details of the Plant Breeding Company
- The modern breeding technology applied and the trait of interest being developed.
- The crop species in which the trait of interest being developed.
- The market segment into which the product will be targeted (e.g. noodle wheat)
- The variety/ies in which the trait of interest will be released and the regions within Australia where the varieties will be released for grain production - within and between years.
- Availability and access to trait detection technology (e.g. PCR assay) that can be utilised by value chain stakeholders/participants to assist in the monitoring the presence/absence of the trait of interest as required
- The expected timeframe for commercial release, and for obtaining pre-market regulatory approvals (if required) in importing countries for commodities produced from the grain containing the trait of interest
- The expected market i.e., domestic/export only, no restriction
- Regulatory compliance information relating to the plant breeding innovation technology and/or trait of interest in target export market(s) and/or measures being taken to gain compliance with required domestic or international governmental approvals or authorizations, if any, prior to commercialization
- Proposed stewardship plans/ process-management systems e.g. stewardship, closed-loop or identity-preservation, including product recall strategies, If required to meet regulatory or market requirements

It is recognised that in some circumstances some regulatory data and intellectually property related information covered by Commercial In Confidence agreements may not be available at the time of initial sharing information. Where there are 'gaps' in information the Guidelines encourage early communication recognising that information 'gaps' can be addressed as commercialisation progresses.

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