FARM PLASTICS PROJECT

Green-farms Product Stewardship Scheme Co-Design Report

The Agrecovery Foundation

Updated August 2022

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Addendum to this report:

The Agrecovery Foundation completed a final draft report of the 'Farm Plastics Project' co-design work on 21 December 2021.

The final draft was then sent to members of the 'Farm Plastics Project' product stewardship advisory group (PSAG) and other relevant stakeholders for feedback on the proposed Green-farms Product Stewardship Scheme, as at 21 December 2021.

Feedback was collected and collated and responded to in a separate addendum to the final draft report, namely;

"Addendum providing a response to the feedback on the Green-farms Product Stewardship Scheme final draft design report dated 24 December 2021, 3 August 2022"

The addendum can be found in Appendix E of this document.

On the basis of the PSAG feedback some changes have been made to the final draft of 21 December 2021 to create this final GPSS co-design report of July 2022.

EXECUTIVE SUMMARY

Agrecovery is a strong advocate for product stewardship, and through the Farm Plastics Project (FPP) seeks to develop a product stewardship scheme for the collection and treatment of farm plastics. Funded by the Ministry for Environment (MfE) to co-design the FPP, Agrecovery has engaged with stakeholders to develop a product stewardship scheme design and implementation process, undertaken a robust assessment of scheme options and made a recommendation to the MfE on a preferred scheme option.

Agrecovery is known in the New Zealand primary sector for operating a successful nation-wide agri-chemical containers and drums, voluntary and accredited product stewardship scheme. The challenge to establish and sustain a farm plastics scheme from first principles cannot be overstated.

Consequently, Agrecovery has acquired a deep appreciation of what is needed to deliver effective farm plastics collections and treatments. Credibility as scheme manager has grown considerably across the voluntary fee-paying agri-chemical plastic producers and the distributors who provide the network of collection sites.

Increasing farmer, grower and farm contractor participation has achieved an over 50% recovery rate of what agri-chemical plastic has been put into the market in the 2020/21 year. This has been a notable achievement, built on fifteen years of operating a voluntary scheme during a time where there was limited public or government focus on reusing and recycling farm plastics. To draw-on this extensive experience when co-designing new scheme(s) under the MfE's farm plastics project has been invaluable.

The outcome of the farm plastics project co-design workstream is a proposal to implement an effective and sustainable regulated **Green-farms Product Stewardship Scheme** (GPSS) for accreditation in 2024. The GPSS is expected to collect and treat the most voluminous farm plastics across four farm plastics waste streams by 2026 and then add-on other farm plastics waste streams over the following four years. The goal being to effectively and sustainably collect and treat most farm plastics by 2030.

Feedback from a wide range of potential and actual scheme stakeholders has endorsed the design of the GPSS. The GPSS includes the existing voluntary agri-chemical product stewardship scheme which becomes a farm plastics waste stream under the new GPSS. The scheme is to be progressed to regulation and accreditation in2024.

The GPSS has initially been designed for four farm plastics product waste streams based on a number of design and implementation principles. Whilst keeping with the integrity of four separate waste streams it has been important to ensure operational coordination and cost sharing opportunities across the streams has been maximised.

The GPSS is ultimately projected to recover the majority of all plastics used on New Zealand farms today with an operational infrastructure in place to cover the collection of the forecast volumes, and be readily scalable in the future to cover other farm plastics and/or other agricultural waste.

Two key aspects of the 2020 gazetted product stewardship guidelines and international best practice have been incorporated into the scheme design. The GPSS will:

1. be managed and governed by a not-for-profit entity
2. provide free collections and treatments for all end-of-life GPSS farm plastic waste streams

The core operational design elements of the GPSS are:

1. a single management and independent governance structure across the four farm plastics streams – each stream will have a dedicated reference group to support scheme decision making and be a conduit to stream participants
2. an optimised network of multiple farm plastic collection (drop-off) sites established nation-wide – using where agreed, existing Territorial Local Authority (TLA) transfer stations and existing single use industry collection sites for multi-plastics collections, including the existing agri-chemical product stewardship scheme collection sites
3. regional contracts in place with local transport entities for the collection of the multiple farm plastics from the drop-off sites to the regional recovery hub sites on a frequency basis along with on-farm collections as required
   – contestable provision of collection services within each of the eight regions
4. eight regional hub recovery locations established nation-wide and managed under contract to undertake the sorting and further treatments, as well as facilitating downstream processing e.g., recycling, for export or for disposal

A degree of uncertainty exists around how quickly farmer participation will grow and returned volumes will increase over time. This risk has been mitigated with the establishment of initial infrastructure that covers over eighty percent of the GPSS farm plastics returns in year one. The blocky nature of the required assets i.e., collection bins, do not allow for ease of scaling collection capacity up or down in response to changing return rates. This will mean funding collection assets in year one that may not be fully utilised over the first few years of the GPSS.

Individual stream funding and cost recovery fees have been derived in the GPSS cost recovery model and are expected to apply at the start of financial year 2024 (FY2024).GPSS fees will be collected as efficiently and effectively as possible – a low collection cost, self-declaration approach will be pursued initially. An automated computer-based system will be developed to collect and record the fees within the first few years of the GPSS.

Experience from the existing agri-chemical scheme and from overseas highlights the need to invest heavily in promoting and marketing the GPSS. A comprehensive promotion and marketing plan will be developed pre-accreditation. It will be critical that an early and

focused campaign is in place by late 2023 and in the early years of the GPSS to rapidly increase farmer, grower and farm contractor awareness and participation.

Farmer participation will be a critical GPSS success factor and a many-pronged approach will be required to increase participation as follows:

- public and farmer to farmer peer pressure to do the 'right thing'
- using farmer and grower advocacy organisations such as Dairy NZ, Horticulture NZ, Beef and Lamb and Federated Farmers to promote the scheme
- contracting the farm plastics collection contractors to promote participation across their regional rural communities
- targeting a range of farming media channels
- using other rural groups such as the Country Women's Institute and the Farm Advisor Networks to push the participation messages to farmers
- direct from brand to farmer marketing and educations material on how to recycle
- explore the use of incentives to drive quality farming practices - intangible and/or tangible
- develop strategic alliances to promote farm plastics recycling in the context of farming excellence
- drawing on local and national government environmental policies, regulation, and initiatives

The GPSS will require compliance and enforcement functions to be in place and these will be provided by the MfE.

In summary, the co-design work undertaken by Agrecovery has proposed the establishment of a four-stream farm plastics priority product stewardship scheme (GPSS) for regulation and accreditation in 2024. The GPSS:

- has received good endorsement from a broad range of potential GPSS participants and stakeholders
- meets the requirements of the MfE guidelines and the Waste Minimisation Act
- takes a modern management and delivery approach to scheme delivery
- is based on overseas best practice
- is operationally effective, efficient, and sustainable
- utilises existing infrastructure where possible
- contributes to the government's expectation of being a visible world leader in the reuse and recycling of plastics and on environmental practices and policies more generally

1. PURPOSE

The Strategic Responsibilities and Obligations with respect to the GPSS are:

1. Primary Responsibility: a focus on the collection and treatment of the GPSS farm plastics.
2. Secondary obligations:
    a. to promote the use of farm plastic packaging that allows for ease of reuse and recycling e.g., to overcome the current constraint to recycling plastics made from more than one type of plastic.
    b. to promote a reduction in the use of farm plastics, more generally
    c. to promote the use of alternative packaging that is more environmentally suitable.

Purpose of the FPP is to provide the MfE with:

- a robust rationale for a new regulated and accredited farm plastics product stewardship scheme
- a scheme where the delivery and operating model is effective, efficient, sustainable, and importantly meets the requirements of the Waste Minimisation Act 2008.

It is important to note that while the Agrecovery Foundation has delivered the Farm Plastics Project (FPP) with Waste Minimisation Fund support from MfE, there is no presumption by Agrecovery that it will be managing the implementation and ongoing delivery of any proposed product stewardship scheme. However, stakeholder feedback during the design process identified that the Agrecovery Foundation was seen as a natural fit for scheme manager. In particular that it was a not-for-profit entity which had considerable prior experience operating the successful agri-chemical containers and drums product stewardship voluntary and accredited scheme and has invested in a supporting IT system.

Overview of the Structure of the GPSS Design Report

2. BACKGROUND

Agrecovery will lead and gain industry involvement in the co-design process with the objective of meeting the requirements of the gazetted priority products and product stewardship scheme guidelines. This includes consultation and endorsement with the aim of having a scheme that meets the requirements of the Waste Minimisation Act 2008, with accreditation and regulation in-effect in 2024.

The New Zealand Government's focus on plastics has significantly increased over recent years with a targeted and combined focus on reducing the prevalence of single use and hard to recycle plastics and increasing circular resource use in the economy. There is also an increasing public concern and is now seen as a pressing environmental problem that needs urgent attention.

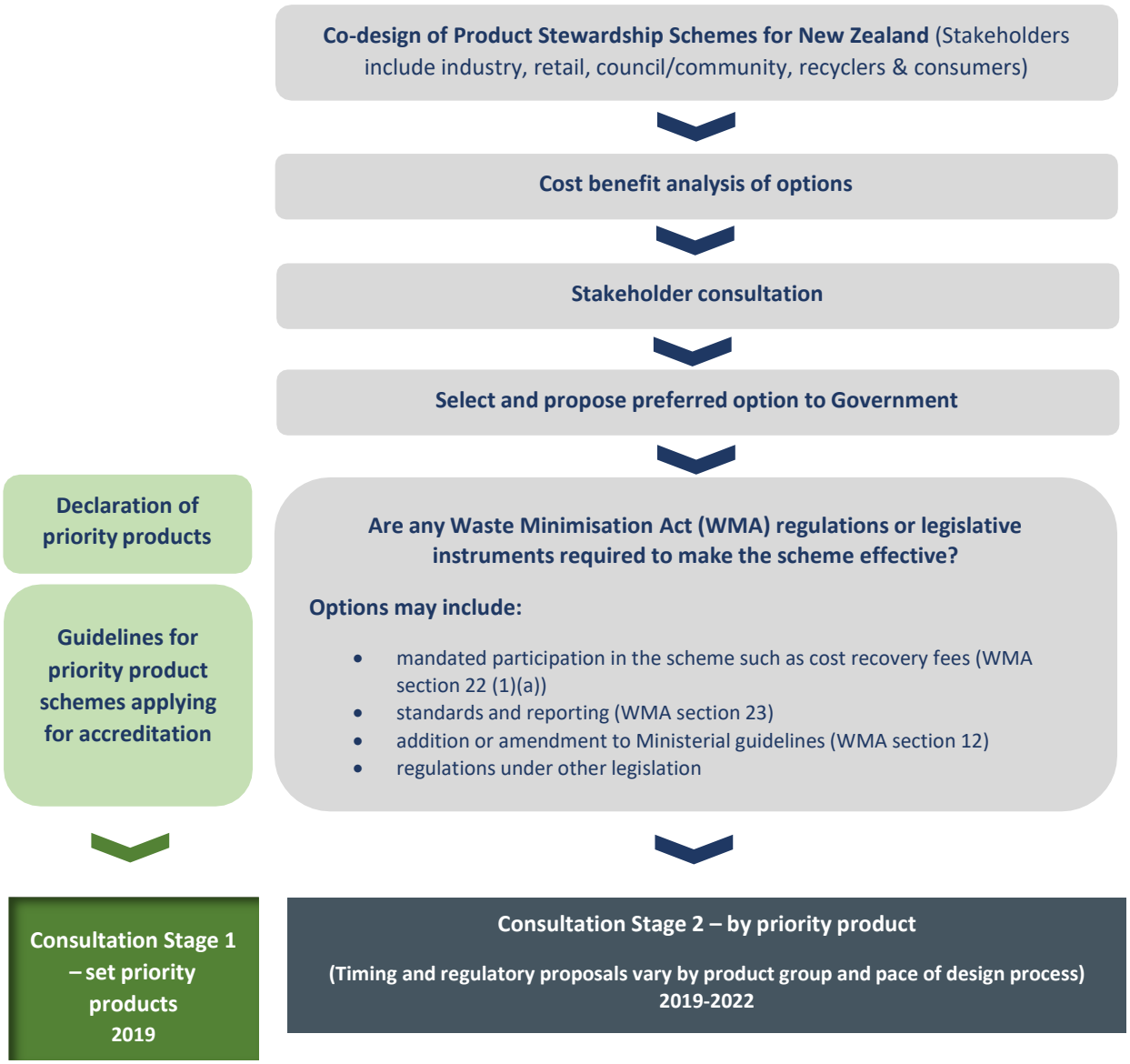
New Zealand taking a global leadership role in managing agricultural farm plastic waste will help drive reduced single-use plastics and increase the recycling of plastics more generally.

> **Circular Economy** – The New Zealand Government has laid the foundation for a new plastics circular economy where plastic materials are kept in the loop as long as possible by promoting their reuse, recycling, and prevention. The new circular economy policy and operational infrastructure for farm plastics will rely on the circular collection and treatments of the end-of-use farm plastics that are beneficial to the environment.

In May 2020 the Agrecovery Foundation (Agrecovery) was funded by the Ministry for the Environment (MfE) to co-design effective and sustainable accredited and regulated product stewardship schemes for farm plastics that comply with the Waste Minimisation Act 2008. Farm plastics is one of six priority products for which co-designed stewardship schemes are being progressed by stakeholders with MfE co-funding.

A potential opportunity in 2021 to consult on regulations for stewardship schemes covering farm plastics and agri- chemicals did not eventuate. This created the opportunity to merge the agri-chemical scheme with any new farm plastics project product stewardship waste streams.

The process for establishing regulated product stewardship schemes



3. PROPOSED PRODUCT STEWARDSHIP SCHEME

Three new regulated farm plastic waste streams have been identified, in addition, to the existing voluntary accredited agri-chemical scheme which has been re-designed into a four-stream farm plastics project product stewardship scheme.

The scheme name proposed is the Green-farms Product Stewardship Scheme (GPSS) to provide for a unique identifier and differentiate from other schemes. The name is not set in concrete and may change based on feedback from stakeholders. Provides for a unique and differentiated scheme name.

All four farm plastic waste streams designed under the GPSS have been progressed in parallel with accreditation planned for 2024. This timeline is subject to successfully progressing through the Government's regulatory processes.

Under the GPSS there are four farm plastics waste streams. They are:

1. **Agri-chemicals and their containers stream,** including any complementary farm plastics - existing voluntary and accredited scheme
2. **Bale wrap and silage sheet stream,** including any complementary farm plastics e.g. baling twine - mostly plastic film packaging
3. **Small bags stream,** including any complementary farm plastics - 10 to 25kg seed, feed, and fertilizer plastic packaging
4. **Large sacks stream**, including any complementary farm plastics – typically half and one tonne grain and fertiliser packaging

The GPSS objectives are to significantly reduce farm plastics from being burnt, buried, stockpiled, or sent to a refuse tip by the farmer, grower, or farm contractor. The operating infrastructure is expected to collect and treat at least 80%, by tonnage, of all farm plastics used on New Zealand farms in 2026 targeted for study by the co-design team. Farm plastics that fall outside of the four streams will still be able to be recycled.

The focus - is on establishing a regulated and accredited product stewardship scheme for priority products and driving change by moving towards a circular economy.

4. DESIGN AND IMPLEMENTATION PRINCIPLES

Principles applied to the design and implementation of GPSS are as follows:

- have well defined boundaries around each farm plastics waste streams, including individual stream fees
- ensure stream producers of the farm plastics pay the end-of-life product stewardship scheme costs – an 'extended producer responsibility (EPR)' concept will be applied
- to promote the use of more environmentally sustainable and/or alternative packaging solutions
- maximise farmer and grower willingness to take their farm plastics to a nearby drop-off location to reduce scheme costs
- that no farmer, grower, or farm contractor is left behind and can conveniently access the scheme
- that no farm plastics, where practical, under the scheme(s) are taken to landfill
- minimise the financial burden on farmers to deal with the end-of life farm plastics
- where practical and effective, private sector providers will be contracted to deliver operational aspects of the schemes e.g., efficient, and contestable collection and treatment functions
- ensure scheme costs are minimised through cross stream operational coordination and cost sharing
- have IT systems, processes and policies that seamlessly integrate the scheme under a single management and governance structure
- have incentives in place to drive scheme efficiency and continuous improvement
- have motivations in place to increase scheme participation through targeted marketing, engagement, education, and performance measurement
- have a coordinated approach through strategic and/or operational alliances and partnerships with local government and other stakeholders
- work alongside other farm plastics recycling entities and show visible leadership in removing farm plastic waste
- ensure scheme obligations are easily understood by all scheme stakeholders
- drive for innovation and best practice by establishing a modern, proactive approach to dealing with the end-of-life farm plastics – a circular economy for farm plastics

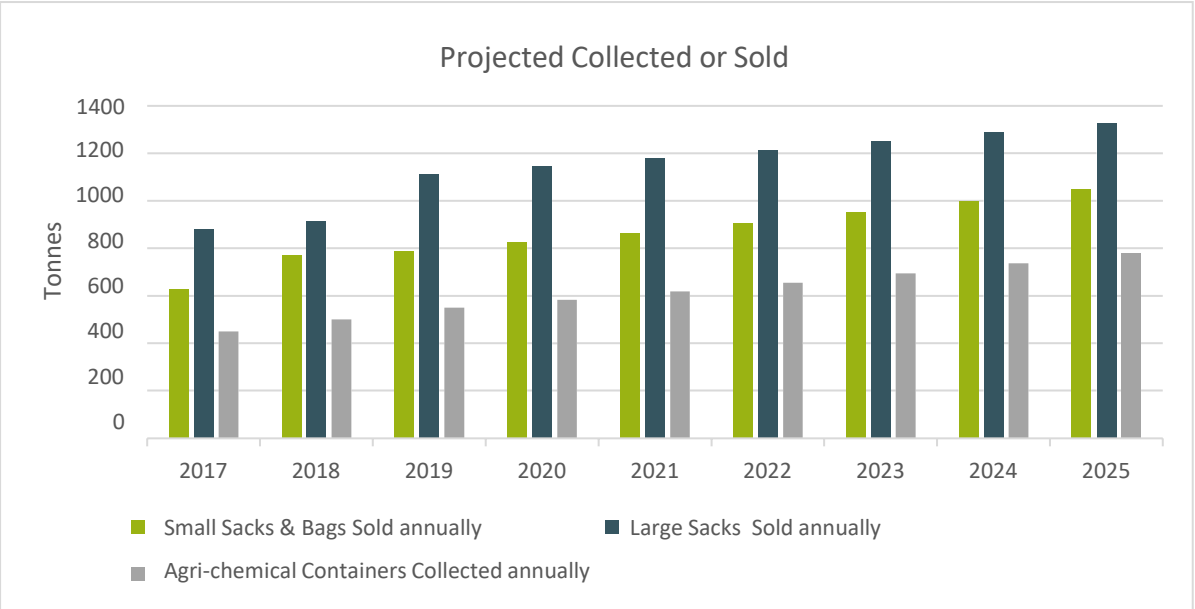
5. PROJECTED GROWTH IN FARM PLASTICS VOLUMES AND RETURN RATES

Projected GPSS Farm Plastics Growth Rates

There is limited information and intelligence on how many farmers, growers and farm contractors will participate in the GPSS, post regulation and accreditation. In addition, how returned (or collected) plastic volumes will change over time is equally uncertain.

Historical data is available on the growth in volumes collected in the agri-chemical scheme. An increase in the number of participating brands and expansion of collection sites accounts for some of the growth, and there has been a marked uptake in farmer participation and collections over the past three years - 2018 to 2021.

An assessment of sales volumes and tonnages was undertaken by Price-Waterhouse-Cooper (PwC) – report September 2020, refer Appendix H. This provided a three-year trend from 2017 to 2019 and this data has been extrapolated forward to 2026 and tested for reasonableness. The projected growth rates for each or the four plastics streams are shown in the charts below.



The quantum of the cost recovery fees each financial year have been calculated in the GPSS cost recovery model based on a forecast of stream volumes and individual stream costs in FY2024, FY2025 and FY2026.

Forecast volumes have been based on, firstly, extrapolating the annual quantities of the various plastics streams for years 2017, 2018 & 2019 - PwC report, September 2020. This covered bale wrap and silage sheet, small seed bags, small feed bags, and small and large fertiliser sacks.

Secondly, taking the extrapolated volumes and applying a reasonable test based on other information. Annual growth rates have been estimated to 2026 as follows:

- Agrichemical Containers and Drums @ 6% per year
- Bale Wrap and Silage Sheet @ 4% per year
- Small Feed Bags @ 6% per year
- Small Seeds Bags @ 5% per year
- Small Fertiliser Bags @ 0% per year
- Large Fertiliser Sacks @ 3% per year

Discussions with relevant industry players and other stakeholders highlight a number of factors that will possibly reduce or increase the use of GPSS farm plastics over coming years:

- The fertiliser industry appears to be moving away from using small sacks with a greater focus on large half and one tonne sacks – *Ravensdown Fertiliser Co-operative*
- There is an environmental push to review the way that fertiliser is used on farms. i.e., the negative impact on waterways
- Growth in feed bags is likely to continue and possibly increase due to climate change (droughts and floods) and changing New Zealand farming practices, such as housing animals indoors
- Seed bags growth is likely to continue at current rates – *general consensus from stakeholders*
- Bale wrap and silage sheet volumes will likely reduce marginally over time, impacted by changing farming practices in the future i.e., a reduced focus on dairy farming and a move back to more traditional winter-feeding methods and hay making
- The agrichemical scheme is projected to continue at current growth rates

The New Zealand Government's focus on reducing the use of plastics and pushing for alternative packaging solutions, along with changing farming behaviour, is also likely to reduce farm plastic volumes over time.

Projected GPSS Farm Plastics Return Rates

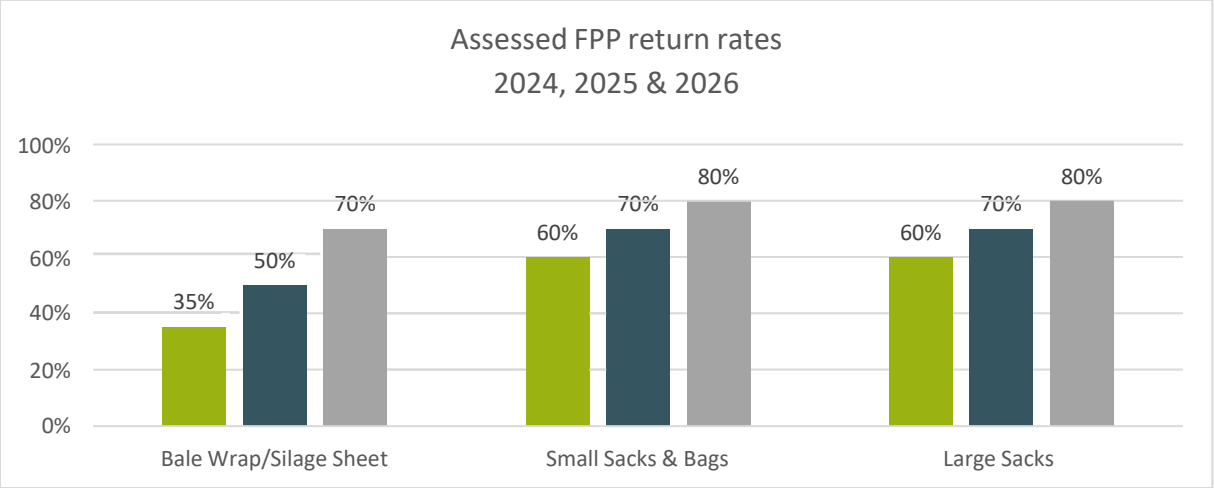
While the sale volumes data is useful, it is the farmer participation in the GPSS that is critical to calculating farm waste stream cost recovery fees. The allocation of costs to each farm plastics waste stream has been based on estimated return rates in year 2024.

An assessment has also been undertaken to better understand factors impacting on GPSS individual farm plastic waste stream return rates. These are:

- the historical return rates for the agrichemical scheme have increased around 6% per year for the past three years 2018 to 2020, following small annual increases over the previous decade.
- overseas trends show it takes some years to grow farmer participation in voluntary recycling schemes where there are no regulatory requirements to participate - a 90% return rate for plastic film has been achieved in the Irish farm plastics recycling programme
- having free farm plastics collections is expected to increase farmer participation
- providing incentives to increase scheme participation e.g., Fonterra payments where their member farmers recycle farm plastics

- the enforcement of local regulations banning the burning or burying of farm plastic waste
- The Farm Plastics Survey undertaken with growers and farmers in early 2021 highlighted that the majority of farmers are willing to drop their plastics of at nearby collection site and to do the 'right thing'
- there is increasing public and peer pressure within rural communities to recycle farm plastics, changing the behaviour of farmers, growers, and farm contractors
- a large New Zealand fertiliser company predicts a 50% return rate can be easily achieved for small and large fertiliser sacks
- local government working with farming communities to develop farm environmental planning, including reducing farm plastics
- exporting countries wanting to source animal product from farms applying sustainable farming practices is increasing
- a heightened focus from government to reuse and recycle plastics

The results of the return rate assessment for the GPSS farm plastics stream are shown in the graph below.



- bale wrap and silage sheet return rates are expected to be approximately 35% in 2024 then growing quickly to 70% by 2026.
- small sacks and bags return rates are expected to be relatively high in 2024 growing to 80% within three years.
- large sacks stream is likely to mirror the small sacks and bags return rates.
- agrichemical stream collections achieved a recovery rate of over 50% in 2020/21 and are expected to grow to at least 70% in 2024.

In summary, there are many variables impacting on the recovery of farm plastics. This report takes the view that the growth in farm plastics returns will map to an S-shaped curve across all streams. We anticipate that recovery rates will sharply increase over the first few years, with incremental growth beyond that. For this to occur a suite of measures will be required through targeted promotion, tangible and intangible incentives, public and peer pressure to change behaviour, and local and central government policies in support of these efforts.

Given the assessed return rates the GPSS operating infrastructure has been designed to meet an overall 80% return rate in the first three years. The aim is to have this level of infrastructure in place by the end of 2024 to ensure the required stakeholder service levels can be achieved.

The return rates have been the basis for the allocation of costs to each of the four farm plastics waste streams.

Cost allocations have been assessed in the GPSS cost recovery model – 21 December 2021. The rates are shown in the table below:

Stream	Percent of the total GPSS collection and treatment (hub recovery) costs allocated to each stream
Agri-chemicals and Containers	11.1%
Bale Wrap & Silage Sheet	68.3%
Small Bags	9.0%
Large Sacks	11.6%

6. DESIGN AND IMPLEMENTATION ELEMENTS

The four farm plastics waste streams forming the GPSS have been designed to significantly reduce the largest and most concerning volume of farm plastics and to avoid the plastics from being burnt, buried, or stockpiled on the farms or disposed of, off farm, such as in refuse tips. The aim being to eliminate scheme plastics being taken to landfill.

Seven core design elements have been considered, fully explored, evaluated, debated, consulted-on and endorsed:

1. who will manage and govern the farm plastics product stewardship scheme?
2. how and who will collect the farm plastics?
3. how and who will carry out the treatments necessary for further processing?
4. how will the scheme costs be recovered and from whom?
5. how will farmer and grower scheme participation be maximised?
6. who will ensure compliance with and enforce the regulations?

All design and implementation elements have been based on extensive feedback from and engagement with a wide range of stakeholders. An inclusive and wide-ranging stakeholder survey conducted in July 2021 provided strong endorsement for the preferred design and implementation elements proposed in this document.

Management and Governance

An independent governance board will represent the interests of producers/distributors, as well as farmers and growers and the wider community. The governance structure, representation and appointments to the board will be covered off during the accreditation process for the GPSS PSO and after significant engagement with the industry.

The experience Agrecovery has, as a not-for-profit voluntary accredited scheme, provides a good starting point in developing the governance structure. However, there is no assumption made that a re-constituted Agrecovery Board will oversee the activities of the newly formed PSO, with this likely to be determined as part of the application for accreditation.

It should be acknowledged that the Agrecovery board has been instrumental in successfully establishing and sustaining the collection and further development of the agrichemical and their containers scheme since its inception in 2006. It has been established and maintained under the provisions of the Agrecovery Trust Deed of December 2005, in line with good governance practice. The board's role has been to:

- provide decision support as required to the CEO
- provide oversight over scheme management and provide guidance to the CEO on important operational matters and risks
- drive strategic and business planning, set objectives, and ensure the business is well managed and well placed to meet future challenges
- establish the organisation's objectives (metrics) and ensure they are delivered on
- ensure sound financial and risk management practices are in place and are being adhered to

These governance objectives align with the Waste Minimisation Act 2008 requirements and, subject to being appointed the PSO and prior to the GPSS scheme commencement, the current Agrecovery Board could transition to a new GPSS Board of Trustees. The existing Agrecovery board would be strengthened to independently, effectively, and sustainably govern the regulated and accredited GPSS.

Ultimately the aim will be to establish a Board that has sufficient independence from the GPSS PSO operation to provide the required level of arms-length and transparent governance of the GPSS operational and management functions. The Board will govern all four farm plastics waste streams, with advisory reference groups appointed for each individual waste stream.

The endorsed GPSS is for the four streams to be managed by a not-for-profit charitable trust, with governance oversight from a Board of Trustees. Expert advice will be sought on the composition and role of an enhanced GPSS Board to ensure it has the necessary skills and experience to govern a large and complex farm plastics product stewardship scheme. The Board will be in place on the scheme commencement date. If Agrecovery was selected to manage the scheme the existing Board will be strengthened to effectively govern a number of farm plastics waste streams rather than the existing voluntary accredited agri-chemical scheme. The intention is for the Board performance to be measured against ISO 37000:2021 {E}. This should ensure:

- effective resource stewardship
- strong organisational resilience and performance
- sound decision-making
- retention and investment in employees

- effective, strong leadership and oversight
- and a skillset that covers the key roles of business governance such as legal, financial etc.

To support GPSS, PSO governance and operational management for each farm plastics waste stream will be supported by a representative reference group who will:

- support the scheme operators to manage each farm plastics waste stream – a decision-support rather than a decision-making role
- identify and mitigate stream risks early and identify improvements
- provide an important link into, and feedback from, stream participants and stakeholders
- assist efforts to raise farmer/grower participation across the four streams
- engage with wider stakeholder groups e.g., Federated Farmers, Horticulture NZ, and Dairy NZ

A competent and right-sized management team will be established to manage the GPSS. The cost recovery model sets out the level of resourcing, areas of expertise and funding required to manage the scale, scope, and complexity of the GPSS and the individual streams.

Farm Plastics Collections

The collection of the farm plastics across the four streams will be:

First - through farmers and growers and farm contractors dropping their farm plastics off at well communicated and sign-posted collection (drop-off) sites. Where possible no more than 25km from the farm gate. This is consistent with the successful operational model used for the existing agri-chemicals and containers voluntary and accredited scheme; and

Second - where the volume of the plastics exceeds set weight limits, the farmer or grower will be offered an on-farm pickup. An on-farm pickup will also be offered where a farm is distant from any established collection site, irrespective of the weight of the plastics.

The aim is that no farmer, grower, or farm contractor is left behind.

Feedback indicates that the majority of farmers and growers support this collection approach

(85% support – farm plastics survey 2021) and are prepared to make the effort, at their cost, to take manageable and typically small amounts of these plastics to a nearby multi-plastics GPSS collection site. This willingness of farmers will substantially reduce scheme costs. Collection sites will be established across New Zealand with the aim of having a national network in place within the first year of the GPSS - FY2024.

Effective farm plastics collections – The scheme manager will work with existing farm plastics collection site owners to optimise a national network of multi-farm-plastics drop-off sites. The site owners are expected to comprise local territorial authorities, farm retail stores, existing agri-chemical collection sites and others.

Where there are gaps in the network of collection sites, new sites will be established. These sites could be local entity premises such as local transport operators who have sufficient space to collect the plastics, and already managed sites that can record the incoming plastics and with an ability to optimise transport to the regional hub recovery sites. Feedback highlights this is a viable option.

There is already a sufficient number of established single plastic collection sites available across New Zealand to form the basis of a national network. Accordingly, existing site owners will be encouraged to take a NZ Inc perspective and allow their sites to be used for multi-plastic collections.

The farm plastics collections and transporting of plastics from and between collection sites and to regional recovery hub sites will be operated under contract. The objective is to use local transport entities to undertake collections in each region – with at least eight regional collection contracts to be established across New Zealand.

Efficient farm plastics collections – It is anticipated that regional drop-off site and on-farm collections will be outsourced to regional transport operators. This will provide tangible value and efficiency benefits over the purchasing or leasing and operating a number of trucks centrally and will allow regional operators to maximise efficiency and effectiveness. In addition, a local operator will better understand the local farming community and allow for optimal collection scheduling.

Farm Plastics Treatments

The GPSS plastics treatment activities will be undertaken at regional recovery hub locations across New Zealand, one in each of the eight geographic regions. Activities and assets at these sites will comprise sorting and further cleaning, hoists to move the material, and baling and bundling of the plastics prior to domestic recycling or for export. It is an aspirational target of the GPSS that no farm plastic recovered will go to landfill.

> **Utilising existing and establishing new hub recovery locations** – This work is well advanced by Agrecovery, under its existing agri-chemical scheme, which is currently working with a number of regional entities to establish workable and sustainable regional hub sites i.e., assets already in place. Other optimally located hub sites with the required assets have yet to be established.

Hub activities will be delivered under contract. The scheme manager will retain ownership and/or responsibility for assets purchased for hub operations e.g., hoists and balers, or look to pay a baling fee at sites where it doesn't own the assets. Work is well advanced with some regional entities to establish workable and sustainable regional hub sites. Other optimally located hub entities have yet to be approached and hub management and assets confirmed.
It is planned to establish eight regional recovery hub locations.

The regional breakdown is:

1. Southland & Otago
2. Canterbury
3. Nelson, Marlborough, and the West Coast
4. Wellington, Manawatu & Wanganui
5. East Coast, North Island
6. Waikato & Central North Island
7. Bay of Plenty & Thames Valley
8. Auckland & Northland

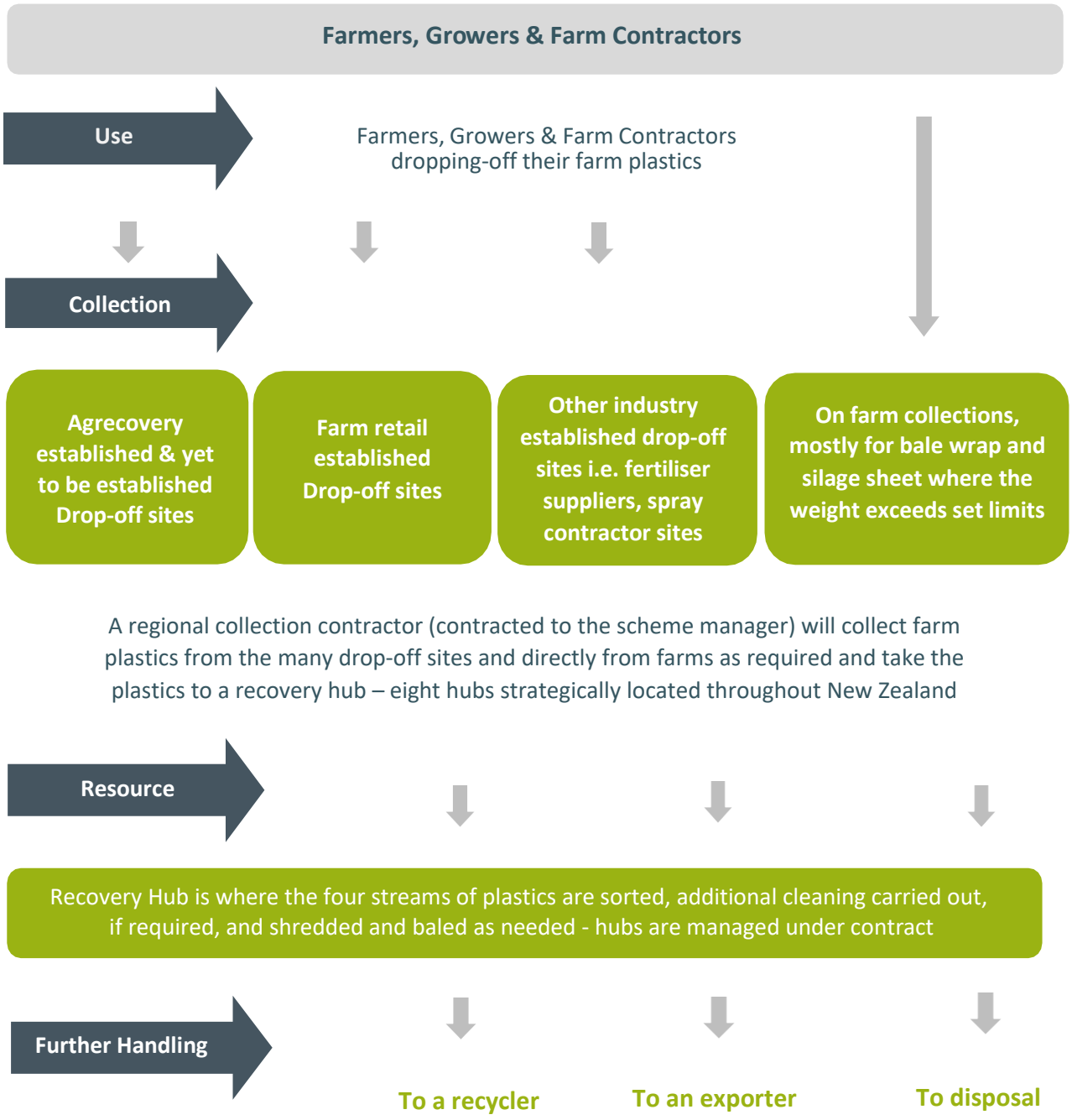
GPSS - Current and Future State

The current and expected future state for the design and implementation of the GPSS is shown in the table below:

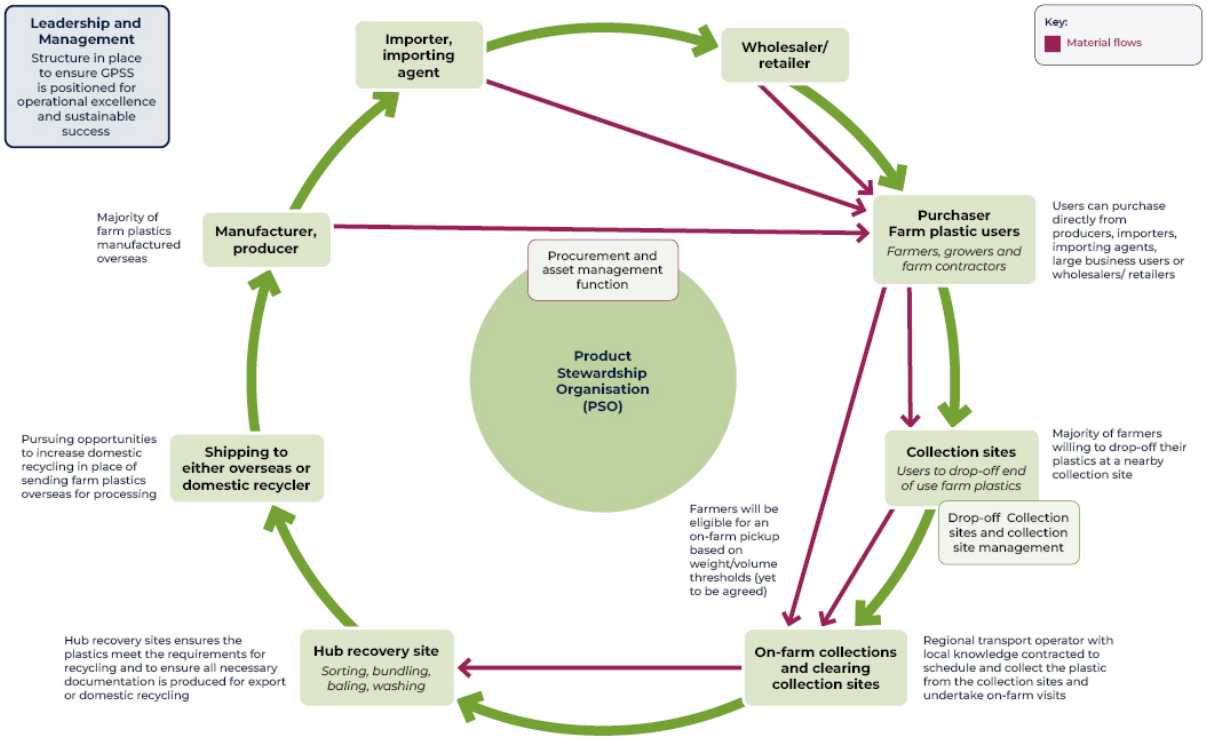
Current State - as at November 2021	**Future State** - FY2024 and beyond
Two individual voluntary and accredited product stewardship schemes. Agrecovery voluntary and accredited agri-chemicals and their containers product stewardship scheme in place and operating successfully on a national basis since 2006. Free rider problem exists. A free scheme for farmers, growers, and farm contractors. Plasback 2021 NZ voluntary and accredited product stewardship scheme in place since 2010 that has a focus on bale wrap and silage sheet farm plastic waste. A commercial scheme where farmers pay for bale wrap and silage sheet collections.	**A single regulated and accredited farm plastics products stewardship scheme** (the GPSS) comprising four farm plastics waste streams – individual and operationally coordinated streams GPSS to implement three new regulated and accredited farm plastics streams along with the existing voluntary and accredited agri-chemicals scheme as the fourth stream. This scheme to be fully transitioned to a stream within the GPSS by FY2024.
Plastics producers voluntary funded (agri-chemical) and farmer/grower pay as you go (Plasback) schemes **No coordinated approach** to farm plastics waste streams collections. A large number of single farms plastic collection (or drop-off) sites owned and operated by industry, including agri-chemical scheme sites.	**Plastics producer funded scheme** – fees from the plastics producers fund a free collection and further processing service to all farmers, growers, and farm contractors. Extended Producer Responsibility (EPR) concept applied. **Coordinated and efficient approach** to farm plastics waste stream collections. Approximately 145 multiple farm plastic collection (drop-off) sites optimally located nation- wide – four farm plastics schemes initially with the provision to add other plastic or agricultural waste streams in the future. Utilising, where practical, existing local government, industry, and agri-chemical collection sites

Partial single farm plastic waste stream treatment infrastructure – location specific and mobile approaches Agri-chemical scheme has been progressing the development of recovery hub locations to undertake further treatments to the HDPE plastics stream – small number of locations established to date	**Fully functional multiple farm plastics treatments through eight regional recovery hubs in place nation-wide** Eight regional recovery hub locations established nation-wide that will apply the necessary treatments to the multiple farm plastics waste streams for recycling and/or export
Collections using Agrecovery owned and Plasback contracted transport providers Agrecovery operates two trucks, one in the South Island and one in the North Island to collect and treat the HDPE plastics from the drop-off sites – sub optimal operating model. Plasback NZ provide on-farm collections, primarily for bale wrap and silage sheet plastics film through contracted collections – for farmers and growers who are willing to pay.	**Collections through competitive contractual arrangements for all four farm plastics waste streams** Eight regional contracts in place with local transport entities to collect the multi-plastics waste streams from regional collection sites. In addition, on-farm collections will be provided when required. Incentives in place through the use of contracted providers to continuously improve the collection service and satisfy farmers, growers, and farm contractors (the end users).
Single voluntary schemes with partial geographic coverage Not all farmers, growers and farm contractors have convenient access to drop-off sites and remote farms have limited access to collection services	**Multiple farm plastics and full geographic coverage** No farmer, grower or farm contractor left behind and have convenient access to a drop-off site or are eligible for an on-farm collection visit
Broadly 40% of farm plastics returned by 2024	**Projected that up to 80% of all GPSS farm plastics returned by 2026**

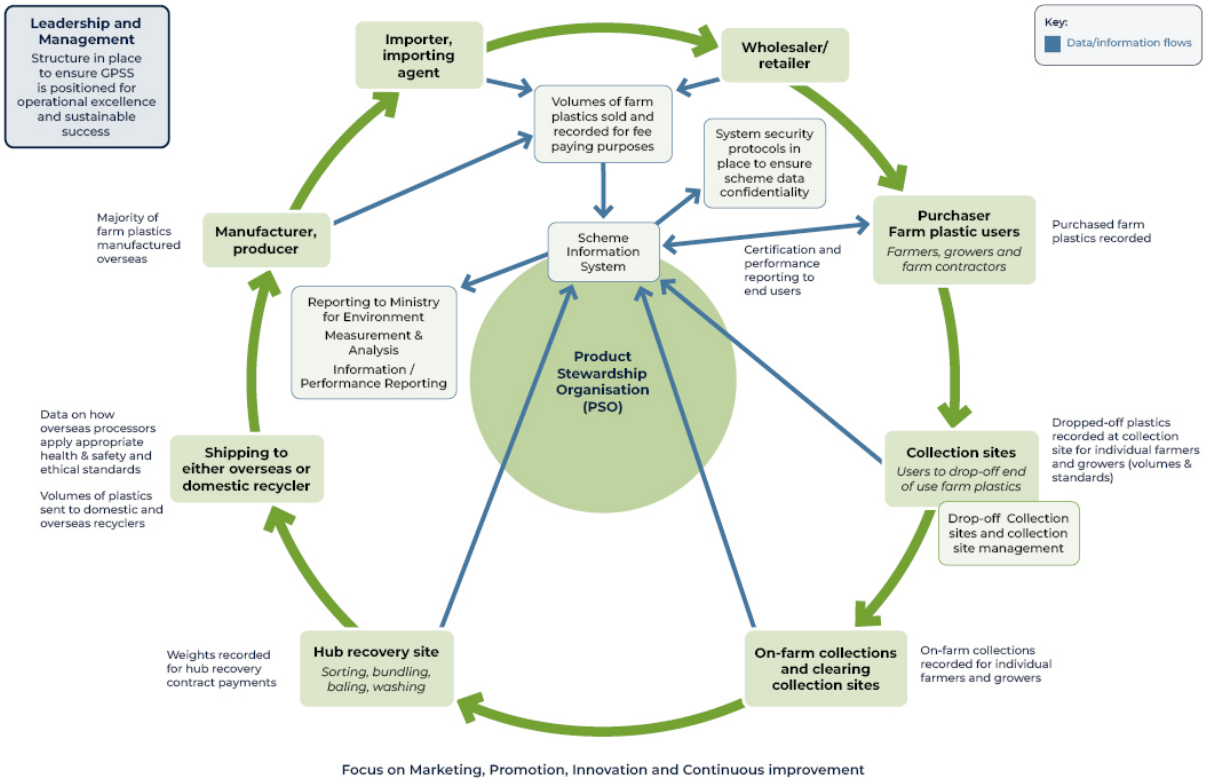
GPSS Operational Model overview - collection, recovery, and recycling



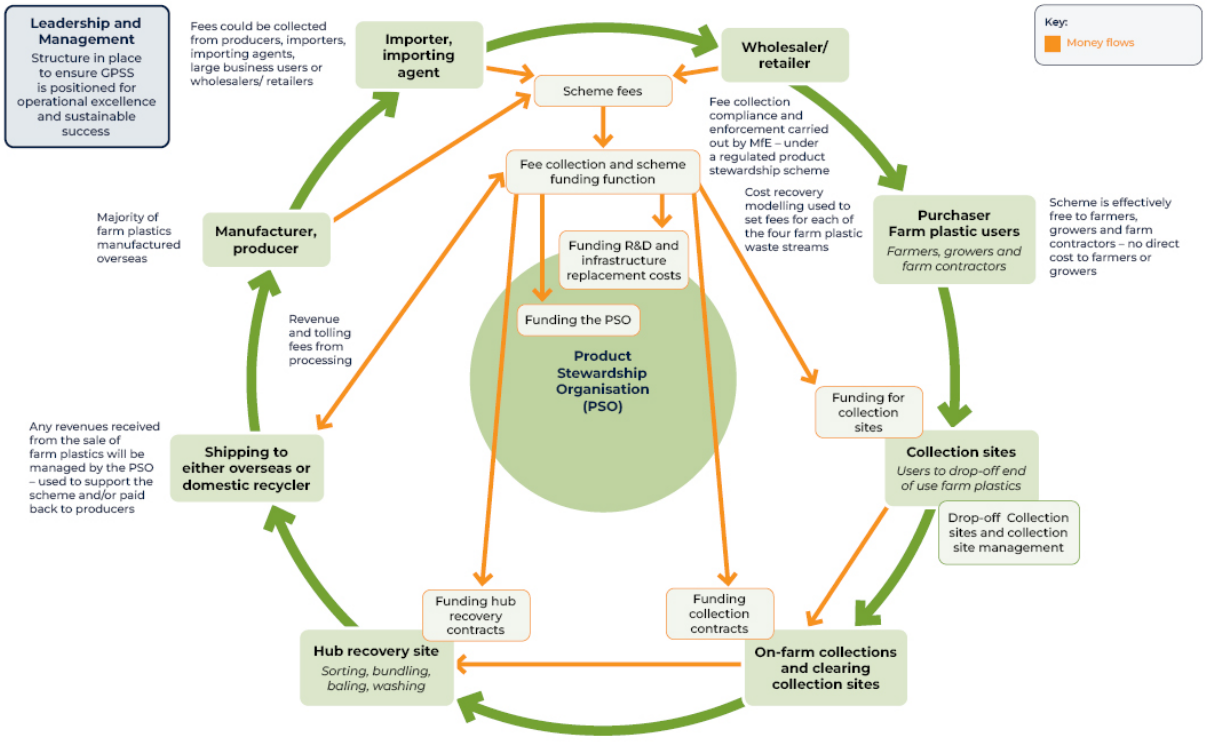
OVERVIEW OF GREEN-farms PRODUCT STEWARDSHIP SCHEME (GPSS) — Material Flows



OVERVIEW OF GREEN-farms PRODUCT STEWARDSHIP SCHEME (GPSS) — Data/information Flows

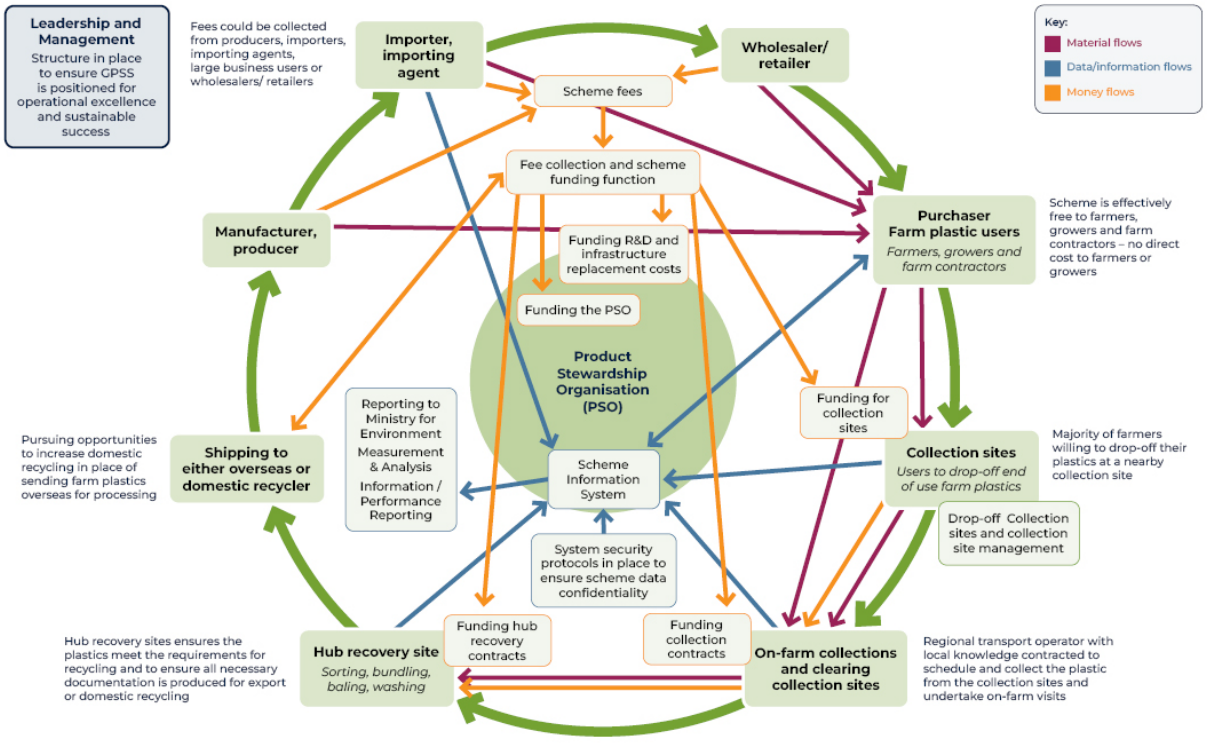


OVERVIEW OF GREEN-farms PRODUCT STEWARDSHIP SCHEME (GPSS) — Money Flows



Focus on Marketing, Promotion, Innovation and Continuous improvement

OVERVIEW OF GREEN-farms PRODUCT STEWARDSHIP SCHEME (GPSS)



Focus on Marketing, Promotion, Innovation and Continuous improvement

Funding the Farm Plastic Streams

The GPSS will be funded through individual stream producer (manufacturer or importer) fees. Any income from the sale of the raw or recycled plastic will be re-invested into the relevant farm plastics waste stream. Where revenue from the sale of the raw or recycled farm plastics is significant, discussions with stream cost recovery fee payers will be held to agree how the revenues will be dealt with.

Core costs to be recovered to fully support the scheme are:

- management and governance
- collections operations
- recovery hub operations
- fixed asset requirements – including maintenance
- marketing and engagement
- compliance and enforcement

Cost Recovery Fees

Producer fees for each of the four farm plastics waste streams have been set on a weight or unit basis. The fees will be collected efficiently and seamlessly to minimise the transaction costs on all parties. The Product Stewardship Organisation (PSO) will be working with producers (or the agents of producers) to agree on a fair, efficient and effective fee collection regime during 2022 and 2023. The calculated cost recovery fees are outlined further in section 19 of this report.

Engagement and Promotion

It will be critical that the GPSS is managed in a way that ensures farmer and grower loyalty and goodwill maintained and participation in the scheme increase. A key focus and investment over the short term will be on building effective communication channels to engage with all stakeholders to increase and maintain scheme participation. The aim of the scheme is to ensure no farmer, grower or farm contractor is left behind and all have an opportunity to participate at no direct cost to them.

Circular Resource Use of the Farm Plastics Waste Streams

The GPSS design for farm plastics moves the plastics from a current linear to a circular economy, or for circular use. The delivery model will recycle and where feasible, re-use or re-purpose and if possible, push for alternative or more environmentally friendly packaging options. By applying full producer fees, the scheme provides manufacturers with an incentive to look at more environmentally friendly packaging options.

Bale wrap:

This plastic is unlikely to be replaced in the short to medium term and will remain the material to deliver the specifications needed to wrap and store hay. It is a highly technical plastic and achieves good outcomes for farmers. Alternative baling and silage options exist that minimise or do away with plastics altogether, but these need to be evaluated against farmer needs and facilities i.e., hay barns and silage pits.

For reference, the Irish Farm Film Producers Group collection scheme for this plastic now achieves a 90% recovery rate and the environmental impact has reduced significantly when measured against non-plastic alternatives.

Applying appropriate fees to cover the cost of its recovery will help drive change to alternatives, supported by a focus on research and innovation into packaging that minimises environmental harm.

While the re-use of bale wrap and silage sheet is not possible, there is the ability to create a circular economy by recycling some of the recovered product into new bale wrap, as well as using it to create other useful farming products.

Small seed, feed and fertiliser bags and sacks:

There has been a more recent move to more standardised size packaging, with 20kg bags now deemed the largest manageable weight from a health and safety perspective. There are various plastic packaging types being used, some with liners made of paper and foil, as well as potential labelling and ink printing issues that can impact on their recyclability.

Packaging choices are often determined by what the product is and what it therefore requires to be packed in to ensure its integrity, safe handling and storing.

Much of the product identified as going on farm is imported, so in many cases there is limited influence from New Zealand on the packaging used.

There has been a trend to order in bulk for farms and then put the contents into smaller bags, partly due to them being easier to handle and use on-farm. Consequently, there is now considerable additional plastic going out onto farms that is more difficult to collect, sort and successfully process.

These various types and composition of packaging will be a challenge to manage and move into a circular economy. However, the issues have been identified and work will be progressed with manufacturers of the plastic packaging to develop ease of circular use plastics.

To further incentivise the move to more recyclable small bag plastics, the concept of "eco-modulation" could be applied, increasing the recovery fees for the more difficult or non-recyclable packaging - which would also help drive packaging changes.

Large polypropylene bags:

These polypropylene bags have qualities that make them useful for storing and transporting many bulk items, including products such as fertiliser and grain. They are lightweight, durable, easy to handle, of low density, cost efficient and recyclable.

Replacing them with another bagging product that has similar characteristics and properties is currently proving difficult. Finding alternatives to transport bulk products safely and conveniently or avoiding packaging and shipping in bulk and creating silos, should also be considered.

Their re-use is possible, but this potentially gives rise to concerns about residual product from the bag's first use, and possible health and safety issues. Also, these bags are usually sliced open from underneath, as it provides the handlers of these bags with the safest and most convenient way to manage them. However, it limits their re-use.

A positive aspect of the use of these bags is that they can be recycled relatively easily due to their standard composition. Those with liners can be processed together with those without,

and they have a residual recycling value, which helps partly offset the cost of their collection.

We expect fees applied to these bags will drive users to look at alternatives that can deliver the same requirements but are more environmentally friendly. We also see the potential second use of wool fadges and these large PP bags as receptacles for the collection of farm plastic waste streams such as bale wrap and the smaller seed, feed, and fertiliser bags.

In summary, these sacks and bags can fit into a circular economy model and can be easily recycled.

Agri-chemical containers and drums:

Under the existing agrichemical product stewardship scheme the hard plastics collected and treated can be recycled into many and various products and will meet circular use outcomes.

Eco-modulation

The application of eco-modulation is where packaging that is harder to recycle the producers of the plastics pay higher fees. The MfE guidelines for regulated product stewardship schemes states that "full net costs for stewardship of priority products at end of life met by product or producer fees proportional to the producer's market share and ease of reuse or recyclability of their product."

Eco-modulation has been considered in the GPSS design process but was seen to be too administratively difficult to introduce in the early years of the GPSS, particularly when many other more important operational elements needed to be bedded in. The exception being for agri-chemical containers where eco-modulation has been applied.

The GPSS PSO will be working with producers over the short to medium term to move to more homogenous plastics across all farm plastics that can be more easily recycled. We anticipate that as the scheme develops and time provided to those putting farm plastics into the marketplace to adapt the need for an eco-modular approach may not be necessary. The GPSS PSO will monitor the ease of recycling across all farm plastics to ensure fairness and where issues arise fees will be adjusted to correctly price the cost of recovery and recycling.

It has been pleasing is to see many of those putting out small seed, feed and fertiliser bags

now giving greater consideration to the type of plastic being used and working with the industry to come up with better labelling, packaging and sorting solutions that avoid it going to landfill. Those making such efforts are likely to insist that they receive appropriate recognition, with fees reflecting the value of the end-of-life plastic and ease of collection and processing.

Agri-chemicals and containers

A voluntary accredited scheme for agri-chemical containers has been operating since 2006, in the process developing drop-off sites for containers and building a collection and onshore recycling programme that recovers the HDPE plastic and sees this valuable plastic reused in other products.

Some of the larger 200L drums used for dairy detergents are recycled up to eight times by the brands after triple rinsing, but concern about the prior use of most agrichemical containers requires them to be only single use before being shredded and converted back into recycled plastic pellets.

The scheme design for this waste stream was undertaken by True North Consulting prior to the Farm Plastics Project being undertaken. Eco-modulation principles were applied to this scheme to reflect the cost of collection, processing and disposal of legacy and orphan chemicals more accurately. This approach was undertaken for the following reasons:

- Chemical collection fees should be based on the cost of disposal of different types or classes of chemicals.
- Some chemicals (such as dairy detergents) should only attract a minimal chemical disposal fee, as these are mostly neutralised and dealt with on-farm via trade waste. Consulted brand owners that focus on these types of products felt strongly that a variable disposal fee was appropriate for the sake of fairness.
- There was also considerable support for an adjusted disposal fee on larger container sizes. Agrecovery does collect a number of these drums as a paid service to brand owners/farmers. This service is currently an optional add-on because re-use is encouraged, and the containers have some value. Given that processing costs for a

200L container are not ten times those of a 20L container, larger packaging sizes justified having a lower packaging fee rate.

- Chemical disposal costs can be broken down into three broad categories:
  - Those that can be neutralised or treated domestically. Lowest disposal cost.
  - Those that must be sent for incineration in Australia. Higher disposal cost.
  - Persistent Organic Pollutants (POPs) which must be sent for disposal in France. Very high disposal cost.

Consequently, a pricing matrix has been recommended that more accurately reflects the costs of recycling for different agri-chemicals and the size of the containers they are being sold in.

Bale Wrap and Silage Sheet

This industry continues to work on creating products that use a finer micron plastic film but retain the same performance capabilities. Moves are also underway to use 20-30% of recycled bale wrap in new products, while newer baling equipment is also attempting to reduce the amount of plastic used for each bale. These developments will convert into lower fees being paid, given that fees are based on the tonnage sold.

There is a large global market for this agricultural film, and considerable competition in the industry, which has helped drive innovation to create film that uses less plastic and/or provides additional stretch and strength performance. The cost of baling feed using plastic film is also continually bench-marked against alternative options for collecting and storing feed, so that as the fee costs are applied to this plastic waste stream it will also be a driver to reduce the use of film plastic.

It should be noted that the plastic used in bale wrap, being LDPE, has value as a recycled plastic, which assists with its recovery. The scheme will provide guidance on acceptance criteria, so that farmers and growers are aware of their responsibility to present this used product with limited levels of contamination, so that the majority of the film collected can be recycled into farming products, or to create recycled plastic pellets to be used in more general manufacturing.

Small seed, feed, and fertiliser bags

There has been an increasing use of small bags in the farming and horticulture sectors, both for ease of handling and due to health and safety considerations. Bags are being standardised to carry a maximum of 20kg of product, so they can be safely handled by individuals, while there has also been a move from bulk purchases of product into smaller bags that provide greater control of the product's release onto farms.

Many of the distributors of these bags are taking a proactive approach and reviewing their packaging options for better environmental solutions, as we signal the move to regulation. We anticipate an increase in the recovery of small bags that can be recycled, as more move to the use of LDPE packaging, where possible, understanding that other plastic packaging sometimes has performance properties ideal for certain products. The scheme also anticipates the use of clear labelling and other identifying options to enable easier sorting and will work with the industry on applying these solutions so that the small bags can more easily be sorted into those that can currently be recycled and those that can't.

We are signalling that eco-modulation should be applied to small bags after the scheme is initially set up and we have greater data and cost modelling to better understand the different costs of dealing with different types of plastic packaging. This will also provide the industry time to adapt and make the necessary changes.

Large polypropylene bags

These bags are a standard packaging product for bulk products, with performance capabilities not easily replicated by other packaging options. Subject to contamination levels these bags can be recycled, with most of it going to offshore markets in Asia.

From a health and safety consideration the bags are mostly single use. Cutting the bags open at the bottom is generally considered the safest way to deal with the bulk products in these bags, which means they aren't suitable for re-use. Concerns about cross-contamination also generally prevents these bags being re-used to store product, although there can be re-use if dealing with the same product.

The industry in New Zealand has largely standardised these PP bags, so that they are

relatively easy to recycle, so long as contamination levels aren't too high. Where the bags haven't been cut open and remain intact, we are anticipating them being re-used by the scheme, with contractors, and farmers and growers, using them to collect and transport other plastic waste streams off farms, such as bale wrap and small bags. Consequently, those bags recovered through the scheme that can be re-purposed will be sorted and made available for scheme participants, creating a circular economy for some of these bags.

GPSS Compliance and Enforcement

The proposed fees are calculated in the GPSS cost recovery model dated 21 December 2021 – with these fees to be introduced from 1 July 2024. A comprehensive list of businesses who supply farmers and horticulture operations with farm plastics will be identified over the next two years to ensure no free riders.

Public consultation will occur on the proposed GPSS fees prior to the GPSS in-effect date and will also consult on the impending regulation. It is expected that industry bodies and associations will provide the scheme PSO with details of those organisation's that should be providing declarations and paying fees.

Stakeholder feedback on the GPSS during its design highlighted that most fee payers will be happy to pay a fee, so long as it is applied fairly and equitably to all those supplying farm plastics and that there are no "free-riders".

The GPSS PSO will take responsibility for data collection and intelligence gathering around the compliance and enforcement of scheme regulations. This database will allow for scheme analysis and reporting that will assist in targeting scheme audits and undertaking verification functions, as well as providing scheme transparency. The GPSS PSO will also take responsibility for identifying fee-payers and ensuring they are provided the opportunity to submit returns and pay the appropriate fees. The PSO will also be responsible for drafting up contracts that clearly state the obligations of both parties and that outlines mechanisms for disputes to be resolved.

The PSO will apply a commercial approach to dealing with fee-payers and undertake its own verification procedures to ensure the accuracy of filings and that there are no "free-riders".

It is expected that as further data is collected and collated, both of what goes out onto farms and of the farm plastic, which is being recovered, this greater understanding will ensure the scheme captures the appropriate fee-payers and the amount they should be paying. The GPSS PSO will also provide guidance and training to fee-payers on the process of quarterly self-declarations and other fee administration requirements. Fee data will be reconciled with actual sales data on an annual basis.

Further GPSS regulatory compliance and enforcement audit functions will be undertaken by the MfE or assigned government agency. Producer fees will cover all MfE audit, compliance and enforcement costs.

International Best Practice

A practice widely used in overseas jurisdictions shows that the end-of-life cost of treatment, recovery and safe disposal of waste put into the market is the responsibility of the producers of those products – the 'Extended Producer Responsibility' (ERP) concept.

This applies to farm plastics and, put simply, the concept is that those who 'create the waste have a responsibility to clean it up at the end of its useful life'. This has been applied to the GPSS design.

A review of international developments, as of 2021, is shown in Appendix B.

7. RATIONALE FOR FOUR-FARM PLASTICS WASTE STREAMS

Creating a product stewardship scheme for farm plastics will be challenging, partly due to the many and various plastic products being used exclusively by the farming and horticulture sectors and also due to the broad and significant volume of non-exclusive plastics that fall into the farm plastics category.

As a consequence, the GPSS design has, in the first instance, identified the most voluminous plastics making their way onto New Zealand farms and then designed a collection scheme that can successfully manage these large plastic waste streams.

New Zealand also has a large number of other primary and agri-businesses that play an important role in the sector, such as viticulture, aquaculture, the kiwifruit industry and equine industries, among others. These have specific plastics waste streams that will also need collection and treatment. These plastics will be captured under the GPSS once the initial four voluminous waste stream infrastructure is in place and fully operational by 2026.

What is and what is not a farm plastic will be more fully defined over the next two years, pre-scheme commencement, through an internal GPSS policy on the guidelines for farm plastics fees and fee collections.

There are a number of factors as to why a product stewardship scheme has been proposed for four of the most concerning and voluminous farm plastics waste streams, with further explanation provided in the following boxes.

1. Agri-chemicals Stream:

- High density (HDPE) plastics not typically found in the other streams
- Contaminated plastics in some instances – veterinary medicine and agricultural compound containers and drums
- Distinct producer group with a voluntary accredited agri-chemical scheme already operating
- Fees are unit based covering a number of container types, shapes and sizes including drums – not easily aligned to any of the other stream cost recovery fees
- Treatments are different to the other stream plastics e. g., standardised cleansing procedures and recycling processes
- Stream has an added component of collecting legacy and orphaned farm chemicals, some requiring specialised disposal methods

2. Small Sacks and Bags Stream

- Packaging can be and have a mix of plastic types in individual sacks/bags, markedly different from the plastics used in the agri- chemical and bale wrap and silage sheet streams
- Large volumes of sacks/bags requiring differing on-farm preparation, collections, and treatment approaches
- A diverse producer group (seeds, feed, and fertiliser) compared to other mostly single use plastic streams – packaging across seed, feed, and fertiliser brands
- Fees are unit based across a significant number of producers – greater effort to administer fee collections than other streams

3. Bale Wrap and Silage Sheet Stream

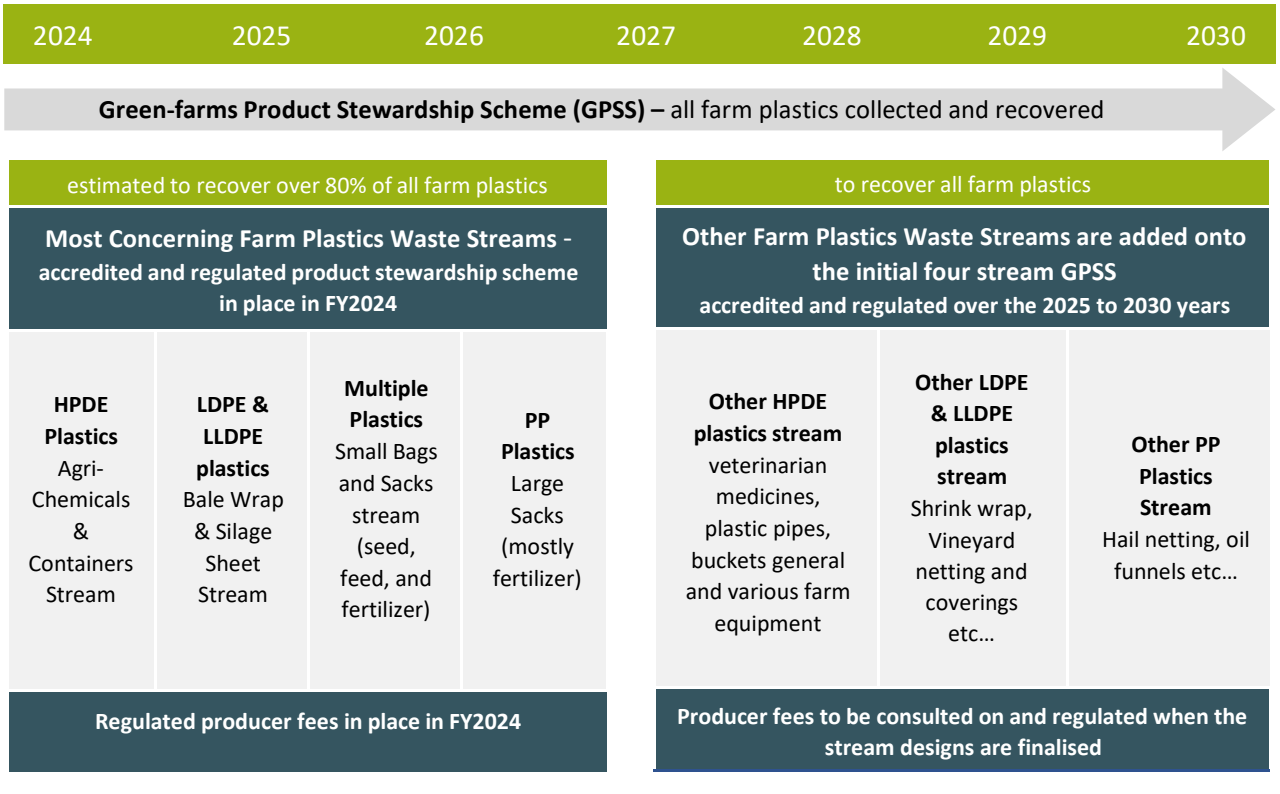
- Low density (LDPE) soft film plastic composition, different from plastics used in the other streams
- larger volumes and weights requiring different on-farm preparation, collections and treatment approaches
- unique and ring-fenced producer group compared to other plastics used on farms – film plastic manufacturers and distributors
- fees are weight (tonnage) based unlike the other streams which are all unit based

4. Large Sacks Stream

- Predominantly half and one tonne woven polypropylene bags, being a type 5 plastic. Significant volumes requiring differing on-farm preparation, bundling and collection approaches
- Mainly grain and fertiliser distributors, with the fertiliser industry dominated by two large co-ops.
- Fees are unit based across a small number of producers
- Treatments are different to the other stream plastics – bulky, unwieldy and somewhat weighty packaging

8. DESIGNED FOR THE FUTURE

The GPSS four farm plastics waste stream model has been designed based on feedback from the MfE, end users (farmers, growers, and farm contractors) and other stakeholders. The approach being taken is to deal with the most concerning high volume farm plastics first and then introduce other farm waste streams in later years. The plan is shown in the schematic below:



The aim will be to have a regulated scheme established by FY2024 that allows for more farm plastics streams to be added-on in the future, and to avoid the need for individual stream public consultation. Note also that new plastics will emerge over the coming years which will also need to be included.

Fees for the future farm plastics waste streams will be calculated and consulted on when each new stream has been fully designed and implementation processes established.

GPSS has been designed to allow for ease of expansion with the ability to add-on additional farm plastics waste streams or the collection of other agriculture waste in the future. Consequently, the operational and delivery model of collection and recovery hub sites can be scaled-up to meet the future collection of other rural waste as required.

There is also the potential in the future to use the existing GPSS infrastructure and operating model approach to extend to wider users of similar plastic packaging. For example, wrap plastics used in construction and, in some cases, manufacturing.

Given that transport costs will form a large component of the scheme, how the GPSS delivery model could be coordinated into the collection of other waste streams coming off farms certainly should be explored. There are emerging product stewardship schemes that overlap with the GPSS such as the e-waste, plastic packaging, tyres, and battery schemes. In addition, decisions about investment in recycling infrastructure should also be made after wide consultation with other product stewardship schemes and we recommend the establishment of forums to share knowledge and coordinate activities.

An assessment of how the GPSS could be integrated into or alliances built with other product stewardship schemes will be explored prior to the implementation and over the early years of the GPSS.

A medium-term strategic option could be to start discussions on how a broader focus on plastics collection and treatment could be established across all sectors and industries who use plastics – a New Zealand Inc all-plastics approach. How the GPSS delivery model could be incorporated into a future wider coordinated plastics approach could be helpful pre-accreditation in 2024.

Information Management

Measuring, reporting on and coordinating activities of a regulated scheme will require a significant investment in IT capabilities.

Agrecovery has developed a large 16,000 farmer and grower database comprising over a third of all New Zealand farm and horticulture operations. This system has been used to:

- record what plastics has been dropped-off or collected
- providing visibility to local contractors to assist in scheduling collections
- providing feedback to farmers and growers on presentation and cleanliness levels
- giving the PSO the tools to manage an efficient and effective collection program and coordinate its activities
- internal and external scheme reporting
- measuring the scheme performance across various metrics

This system, with minimal enhancements, is expected to meet the IT requirements of the GPSS. Having this IT system and harnessing the knowledge and expertise gained from operating this system has significant value benefits for the GPSS PSO.

The IT system characteristics are:

- farmers/growers can register on the portal, with contact and address details, special requirements and other useful information
- plastics captured under the scheme i.e., agrichemicals, bale wrap, small sacks and bags can be pre-loaded into pull-down menus, with fields available for quantity/weight/size and the like
- text fields are provided to capture plastics information through pull-down menus.
- collection contractors/transport operators/recycling facilities all have secure access to parts of the portal to enter data and coordinate collections and other activities
- recording cleanliness and presentation against acceptance criteria
- providing analysis, verification, and reporting functions

The GPSS PSO will have full responsibility and visibility of the system and will ensure data security through strict protocols for both internal and external access to information.

Handling sensitive data from various competitor companies will be critical to the success of the GPSS and any sharing of data subject to commercial sensitivity considerations.

Scheme reporting will cover:

- plastic volumes put into the market and clearance rates, along with financial information on the cost and performance of the scheme
- reporting to the MfE
- farmer and grower reporting to enable them to see their performance and to show proof of their environmental practices
- real-time information to collection contractors to schedule collections
- wider stakeholder information on overall scheme performance

Incorporating the current IT system operated by Agrecovery is seen as a preferable option than developing a new GPSS IT system with the functionality and capability to support the scheme, but this will ultimately be the decision for the chosen PSO. The knowledge and lessons Agrecovery has gained from the development of its IT system is a valuable resource that should be harnessed to ensure whatever IT system employed will meet the scheme requirements.

9. NO RECOVERED FARM PLASTICS SENT TO LANDFILL

A longer term GPSS measure of success will be to have little, or no recovered plastics going to landfill, having found recycling opportunities for most of the farm plastic collected. It is known that that all well-presented agri-chemical containers and drums, bale wrap and silage sheet, and large sacks GPSS stream plastics can be recycled currently and can go to a domestic recycling facility and/or for export.

However, this is not currently the case for the small sacks and bags packaging. Around 90% of the small seed and feed bags (10kg to 25kg) are typically made from a mix of plastic types making them difficult or impossible to recycle. This represented an estimated 800 tonnes of farm plastics, or 6,400,000 bags sold in 2019, accounting for less than 10%, by weight, of all farm plastics sold or collected that year – PwC report, September 2020.

To address the inability to recycle the majority of seed and feed bags, Agrecovery has a trial underway to explore how these bags can be recycled or their packaging modified to be recyclable in the future. Firstly, working with existing recyclers to explore how the existing bags could be recycled. Secondly, and more importantly, how bag producers can change the design, labelling, and composition of their bags to facilitate ease of recycling.

> **Changing or creating new farm plastic packaging composition to facilitate ease of recycling.** Where plastic packaging is used for farm purposes, education, and composition and labelling standards will be explored and established to ensure all GPSS plastics can be recycled and be part of a circular economy. Agrecovery is working with producers and other stakeholders to achieve this outcome by 2024.

It is planned that all farm plastics can be recycled by 2024 when the GPSS comes into effect.

Domestic plastics recycling capacity and future preparedness

New Zealand has been increasing plastics recycling capacity, albeit slowly, with much further investment required. A number of local plastic manufacturers, such as Astron, Rural Direct, Solo, Flight Plastics and Comspec, do use recycled plastics in their manufacturing process. Others, such as Recycle South (formerly Southland Disability Enterprises) in Invercargill, are commissioning additional wash lines and pelletising plant in anticipation of the increased collection of farm plastics.

It is clear there is not enough plastics recycling capacity in New Zealand to process current plastics collections, let alone farm plastics on their own. The future investment picture for domestic plastics recycling is unclear as there appears to be limited investment in new processing plant on the horizon. What is possible and likely is the expansion of existing recycling plants to increase their current capacity.

Market forces to date have not driven sufficient investment in recycling facilities to meet current and forecast plastic collection volumes, so that currently exporting plastics is still a significant part of New Zealand's recycling efforts,

The GPSS design report has considered the development of more recycling infrastructure domestically to be outside of the scope of this project at this time. To do so the scope of this

work would have to extend beyond farm plastics into the areas of domestic, manufacturing and construction plastics, with much wider engagement required.

There has been limited appetite from businesses to move early on creating more local recycling operations, with proposed regulation likely to provide more certainty on likely plastics volumes recovered. Increased landfill levies may potentially drive investment in recycling infrastructure.

As regulation is enacted, fees established and collection programs put into play, it will be apparent that capacity constraints will occur. If the ability to ship some of this plastic waste offshore was curtailed there is a distinct possibility New Zealand could end up with stockpiles of baled plastics, with no current solution for processing.

While having identified this as being a potential problem, we feel it is not the purpose of this report to try and offer solutions, rather to highlight that there are potential pinch points in creating collection solutions where there is not the required infrastructure to deal with the product collected. The consequence of the lack of existing and short-term capacity to recycle domestic plastics is that export is the only other option.

Exporting farm plastics

The only alternative to a lack of domestic recycling capacity is to export the farm plastics overseas. Large volumes have been sent to Asia for a number of years. Substantial recycling facilities are known to have been built in Vietnam for example in anticipation of supply coming from other countries.

The exporting of single-type plastics is still permitted under the Basel Convention, although new requirements introduced from 1 January 2021 require it to be almost free of contamination and destined for recycling in an environmentally sound manner. The sustainability of New Zealand processing much of its plastic waste by shipping it to Asia is also in question, which all points to longer term solutions needing to be found onshore.

A legal commentary on the Basel Convention and the implications for the GPSS have been added to the appendix (Appendix N: Legal review of the Basel Convention – Mahony Horner Lawyers).

Agrecovery and Plasback have overseas markets and processes in place to export farm plastics when required and this is likely to continue for the other GPSS farm plastics streams from 2024 onwards.

Our assessment suggests that while the opportunity to export farm plastics will likely continue over the next decade, more emphasis needs to be placed on providing onshore solutions to provide longer term solutions. At best it is a stop gap measure that leaves us at the mercy of overseas markets and fluctuating prices for both the plastic shipped and transportation costs. It should be noted that processes are in place and are routinely checked to ensure the exported plastics are being processed ethically and in an environmentally sound manner by overseas processors.

10. OUTSOURCING COLLECTIONS AND TREATMENTS

To ensure efficient and cost-effective collection and treatment of the GPSS farm plastics, the proposal is to outsource these activities regionally across eight defined geographic regions.

Process at Drop-off Sites

There are currently a number of drop off, or collection, sites around New Zealand for agrichemical containers – the existing agrichemical product stewardship scheme. Many farm retail stores host an Agrecovery shipping container or cage for farmers and growers to drop-off their containers. They also offer the service of recording what has been dropped off and inspecting the plastics to ensure they meet the presentation criteria i.e. triple rinsing. In addition, some farm contractors, such as rural spraying contractors, also offer their premises as drop-off sites for agrichemical containers and other farm plastic waste streams.

Two of New Zealand's largest fertiliser companies, Ravensdown and Ballance, have also established collection sites for farmers to drop-off their large fertilizer bags, enabling them to be shipped offshore for recycling.

While Brazil, Canada, Australia, and the EU have either piloted or regulated schemes for single plastic waste streams, no country has attempted to tackle multiple farm plastic waste streams with one scheme.

The design of the farm plastics scheme collections incorporates an inspection and recording requirement as part of the process:

1. Firstly, to provide farmers and growers with evidence of their environmental efforts for audit purposes.
2. Secondly, to inspect for cleanliness and acceptable presentation levels. Bale wrap can contain up to 50% contamination, from moisture, mud, and grass. Agri-chemical containers need to be tripled rinsed and large and small bags emptied of their contents. The small seed, feed and fertiliser bags also currently require sorting.

Observational inspections need to be performed in the collection cycle, ideally at the closest point of collection, so that those farmers and growers dropping off their plastic can be provided with feedback and to ensure ease of downstream processing.

How collection sites will operate will be determined by the type of facility being used and its opening hours. Costs for time and effort to inspect and register these drop-offs has been incorporated into the GPSS cost recovery model.

Eligibility for an on-farm pickup

The GPSS design provides for a mix of farmer drop-offs and on-farm collections (pick-ups). On-farm pickups will be provided when the volume or weight of the plastics from a single farm exceed yet to be determined thresholds. In addition, an on-farm pickup will be provided to remote farms where the farm is further than 35km from a GPSS drop-off site.

Prior to scheme commencement in 2024 the on-farm pick-up volume and weight limits will be agreed in consultation with end-users and communicated to all farmers, growers and farm contractors. Scheme cost recovery modelling estimates that approximately 200 farms in each region will require an on-farm pickup. In many instances, remote farms tend to be larger farms requiring a visit and will typically meet the weight and volume thresholds.

The GPSS collection contractors will administer who will receive or not receive an on-farm pickup using the agreed thresholds as a guide. It is expected there will be some discretion around who receives a pick-up, with contractors coordinating activities with farmer catchment groups to achieve efficient and best outcomes.

The contractor will be expected to coordinate and schedule pick-ups that minimize empty running, using backfilling where possible, and picking up plastics from more than one farm on a single trip. It is also expected that a smaller farm, who did not meet the on-farm collection criteria, could be included on the way during a remote farm visit where truck capacity is available.

The collection contractor will be tasked to take a proactive approach and contact the farmers who they believe will meet the criteria and agree on a collection visit(s) i.e. date, location and volume. Farmers and growers will also be expected to contact the local contractor to arrange a visit where they meet the criteria.

The framework of the collection contracts will aim to bring the contractors into the GPSS culture and support the marketing and promotion efforts by growing scheme participation and draw on their relationships and credibility among their local rural communities.

It is proposed that contractual arrangements be entered into between the GPSS manager and regional transport entities to manage and facilitate the collection of the end-of-life farm plastics. This would be a contestable service.

Regular pickups would be undertaken from the many collection (drop-off) sites as well as on-farm collections where the farmer meets the criteria for an on-farm pick-up. The collected farm plastics are then transported to the regional recovery hub for further treatment e.g., sorting, and further processing for export and/or domestic recycling.

Collection contractors are expected to:

- ensure the end-of-use plastics are collected from the many regional collection (drop-off) sites on a planned frequency and/or when required basis i.e., when the site cages and/or containers are full
- liaise with the collection site owner or manager to ensure the site is cleared in a timely manner
- facilitate all on-farm visits to farms where they meet the criteria for an on-farm collection. This will require:
  - contacting the farmer or grower who is expected to meet the criteria and offering an on-farm visit to collect the plastics e.g., where they are a large user of bale wrap and silage sheet or from a very remote farm
  - coordinating with the scheme manager and farmers or growers who meet the criteria and require an on-farm collection e.g., setting up collection dates and times
  - keeping adequate records of who and what has been collected - using the scheme managers provided database
- take on a scheme manager's liaison and promotional role to increase farmer or grower participation in the GPSS throughout the region, through:
  - visibly liaising with regional farmers and growers to promote the GPSS – through word of mouth and disseminating promotional material
  - having local credibility and local presence will assist with getting the farm plastics recycling messages out

Note: The GPSS manager will support the regional collection transport contractors through providing access to a computer-based information system. This will assist when contacting regional farmers, growers, or farm contractors and for record keeping. A central Agrecovery stakeholder database already exists which could be enhanced and customised to meet the contractor's needs.

Recovery Hub Contracts

For the further treatment of the farm plastics, it is proposed that eight regional recovery hubs are established. The hubs will carry out all the treatments to be applied to the plastics prior to being sent for export or a domestic recycling plant. This will include sorting, additional cleaning if required and bundling or baling prior to being transported for further processing.

Note: The purchase, leasing or sharing of hub fixed assets will be the responsibility of the GPSS manager.

Structure and intent of the outsourcing arrangements

The contractual arrangements will:

Contractors operating these proposed hub sites are expected to:

- manage the recovery hub site as it relates to the GPSS farm plastics treatments
- facilitate receiving the farms plastics into the hub from the regional collection contractors
- ensure the plastic treatments are completed in a timely manner and to the standards required for further processing
- arrange the transport of the treated plastics to its final designation e.g., to a local recycler or to a port for export.
- operate, manage, and maintain the assets at the hub e.g., balers, washing facilities, mobile stand alone or truck mounted hoists
- ensure Health and Safety processes and site operations apply best practice and legislative requirements are always met

- Provide for a spirit of partnership between the contractor and the GPSS manager. The aim being to foster a shared culture around meeting the outputs and outcomes of the GPSS. In essence to become part of the GPSS manager's business.
- Have a local perspective and flavour within the contracts so that the regional contractors are able to develop their own way of engaging and working with local farmers and growers. The aim being to ensure the service delivery meets the needs of regional farmers and growers, as well as those of the wider industry and that stakeholder satisfaction is maintained.
- Have performance measures and financial incentives built into the contracts to drive efficiencies, reduce costs where possible and maximise farmer, grower, and farm contractor participation in the GPSS.

11. PLACE FOR COMMERCIAL FARM PLASTICS COLLECTION AND RECYCLING

The focus of the GPSS design has been to establish a delivery and operating model that covers all farmers, growers, and farm contractors so that all have the opportunity to conveniently participate free of any material direct cost to them. The scheme has been designed so that no direct payment is required by the end user, when the farm plastic has reached its end-of-life state, to have it collected and treated.

Alternative farm plastics collection and treatment options - the intention during the design phase has been to ensure where a farmer, grower or farm contractor wants to pay for farm plastics collections and treatments they can do so outside of the GPSS.

The GPSS design has been undertaken on a first principles basis. That is to design a scheme that can cover all New Zealand farms, be free to farmers, and managed as a not-for-profit product stewardship scheme. There is a place for commercial operators to provide complementary or pay as you go services outside of the GPSS. There is also an opportunity for commercial operators to contract to the GPSS PSO to provide regional collections, as described in this report.

Plasback was established in 2006 to provide a commercial service, primarily for the collection and recycling of bale wrap and silage sheet. It established a voluntary and accredited product stewardship scheme in 2010 for which accreditation with the Ministry for the Environment will expire in 2024. It is a scheme where farmers and growers pay for the collection of their bale wrap and/or silage sheet.

Due to the commercial sensitivity of the Plasback data, there is only limited information on their activities and performance. The most recent figures provided are that 4,000 tonnes of bale wrap and silage sheet was collected by Plasback in the past year, being 40% of the approximately 10,000 tonnes of bale and silage plastic put out into the market in 2019 – refer Price Waterhouse Cooper (PwC) report September 2020. This currently leaves the majority of this plastic being disposed of in a less environmentally appropriate way. Note that the data does not state whether the 4000 tonnes collected by Plasback is wet or dry weight. If it is wet weight, then the amount of actual bale wrap and silage sheet plastic collected will be significantly less than 40% of all bale wrap and silage sheet put into the market in 2019.

The GPSS has its focus on farmers, growers, and farm contractors who are unwilling or maybe cannot afford to pay for a private operator to collect their farm plastics. The GPSS provides for an equitable approach by providing a free nationwide service funded through producer fees.

Leveraging-off the existing agrichemical accredited scheme experience the GPSS will look at

bringing in aspects of other existing farm plastics recycling schemes or programs where there is alignment. In particular, the Plasback 2021 NZ voluntary and accredited scheme, with its extensive baling operations, will likely be incorporated into the larger GPSS scheme.

Plasback have received some funding for infrastructure assets, such as balers, from the MfE. They have also established a network of rural contractors throughout a large part of New Zealand to undertake the collection of farm plastics from individual farms. This is a user pays system, where farmers and growers pay for a clear plastic liner, into which they can place their farm plastics. They then book and pay for an on-farm collection, with pricing based on the number of liners requiring pick-up.

Work has yet to be undertaken to determined how these assets and contracted services could be integrated into the GPSS. Further discussion with Plasback will be required to establish an effective and efficient approach that meets the MfE Guidelines and avoids duplication.

The current plastic balers and shredders are only used periodically by both Plasback and Agrecovery, so the emphasis will be to coordinate the operation and placement of these critical assets to get the most efficient use out of them. Coordinating this infrastructure throughout New Zealand will be the responsibility of the GPSS PSO.

Plasback have considered the role they could play in the regulated scheme for farm plastics and provided extensive feedback on the GPSS design. This has been responded to in an Addendum to the final design report dated 22 March 2022.

Taking the GPSS scheme design forward will require working with Plasback on how their current services and infrastructure can be effectively aligned and incorporated into the GPSS. The GPSS manager will also encourage and be open to alliances with any farm plastics recycling service providers willing to support the GPSS objectives so that there is a coordinated approach to ultimately collecting and treating all farm plastics.

12. CONSULTATION AND FEEDBACK

Agrecovery has engaged with stakeholders on the design of the GPSS as defined within the public consultation document titled 'Proposed priority products and priority product scheme guidelines' public consultation document' (MfE publication reference number - ME1428)

Overview of stakeholder engagement and feedback

Agrecovery has taken a planned and phased approach to ensure adequate and wide-ranging stakeholder engagement and feedback has been sought and considered - from exploring scheme options to obtaining endorsement on the final scheme design.

Phase & Timeline	Purpose of the Planned Engagement	Outputs/Outcomes
Phase 1 June - September 2020	To understand the size of the farm plastics problem and extent of the operational challenge to collect and treat the plastics. To undertake a survey to quantify the annual volumes & weights of farm plastics used on New Zealand farms in 2017, 2018 and 2019	Price Waterhouse Cooper (PwC) report completed September 2020 – report is shown in Appendix H
Phase 2 June 2020 - January 2021	Seeking from a wide range of stakeholders, feedback on possible options for additional farm plastics product stewardship scheme(s) - formal and informal feedback	Stakeholders engaged with are shown in Appendix A and Appendix C
Phase 3 January 2021	Understanding what farmers and growers think about additional farm plastics recycling options and their preferences - through a survey using Federated Farmers and Horticulture NZ channels	Key findings from the survey are described further in this section - survey questionnaire and findings also shown in Appendices C & D
Phase 4 January - June 2021	Feedback from a range of key stakeholders as Agrecovery worked through the possible scheme options and arriving at three new farm plastic waste stream designs along with the implementation processes required.	Stakeholders engaged with are shown in Appendices A & M Including a meeting with the Product Stewardship Advisory Group (PSAG) to seek their input on possible scheme options

Phase 5 July – August 2021	Seeking endorsement from a broad GPSS stakeholder group for three new regulated and accredited farm plastics product stewardship stream designs – through a stakeholder survey	Survey findings have been referred to throughout the document and shown in Appendix J
Phase 6 August – December 2021	Seeking specialist feedback during the process of testing and defining the scheme design and implementation process – to ensure that the: • GPSS cost recovery modelling is robust – review by PwC • GPSS designs meet legislative requirements through a legal review by Mahony Horner Lawyers • Agrecovery Board has approved the report to be submitted to the MfE • Farmer Reference Group and PSAG feedback on the final designs, costs and fees have been completed	Input from the PSAG and farmer reference group Mahony & Horner lawyers letter testing the GPSS design in terms of legislative requirements – refer Appendix I Agrecovery Board reviewed and agreed draft report (November 2021)

The planned approach has been crucial to receiving consensus and endorsement from relevant stakeholders throughout the entire GPSS design process. This has been applied from measuring the size of the farm plastics problem to developing options to establishing an effective, workable, and sustainable product stewardship scheme, as well as incorporating the existing agri-chemical scheme as a stream under the GPSS.

Phase 1 findings from the PwC survey - September 2020 provided Agrecovery with an estimate of the size of the farm plastics problem and the extent of the collection and treatment challenge. The PwC report captured the weight and quantity of the most concerning farm plastics sold in the New Zealand marketplace in 2017, 2018 & 2019. This work excluded the existing voluntary agrichemicals containers and drums scheme where weights and quantities collected have been measured annually for a number of years. The PwC report is shown in Appendix H.

The PwC report highlighted the weight of farm plastics sold in New Zealand to be approximately 12,500 tonnes in 2019. The expectation based on feedback from industry and farmers is that farming practices and increasing volumes are unlikely to change over the short term. However, with the government's drive to limit single use plastics and a net zero

emissions focus, farming's reliance on plastics over the medium to longer term is likely to reduce. A long-term focus on environmentally suitable alternatives is also likely.

Phase 2 feedback was from a wide-range of stakeholders including findings from a sample of farmers and growers - survey (January 2021). This assisted Agrecovery to identify new scheme options. The feedback underscored that any new scheme(s) should:

1. identify a limited number of the largest/most concerning farm plastic waste streams and develop schemes to manage these successfully, before broadening out to tackle other or all farm plastics
2. be nationally consistent and flexible as opposed to specific and differentiated regional approaches
3. be not-for-profit schemes and schemes managed by a not-for-profit entity
4. consider Agrecovery as an appropriate entity to manage any new farm plastics scheme given its success in managing the long standing agri-chemical scheme
5. have the producers (or manufacturers) bear all the costs of collection and treatments of the farm plastics at their end-of-life
6. establish a single communication, information, measurement, and monitoring system - single stakeholder database
7. deal with multiple plastics waste streams at once to keep costs to a minimum
8. have regulatory compliance, audit, verification, and enforcement managed independently by the MfE or other independent entity
9. focus on educating and training farmers and growers to 'do the right thing' and adequately prepare their farm plastics for collection
10. acknowledge that managing additional farm plastics product stewardship schemes will require a competent and well-resourced organisation to successfully implement and sustain them.

Phase 3

Findings from the Agrecovery farmer and grower survey (January 2021) emphasised four critical scheme design considerations:

1. want a substantially free farm plastics collection service – not having to pay directly to have their plastics collected and treated
2. farmers and growers are increasingly committed to recycling and prepared to 'do the right thing' – a focus on incentivising and motivating recycling is needed
3. willing to make an effort at their own expense to drop-off their farm plastics at a nearby drop-off site within approximately 25km from the farm gate.
4. farmer and grower loyalty and goodwill will be critical to the success of any new scheme(s)

The willingness of farmers and growers to drop-off their farm plastics

The central assumption in the scheme designs has been that most farmers, growers,and farm contractors will be willing to drop-off their farm plastics at a nearby GPSS multi-plastics collection site. This will be at their expense and where the weights of the plastics are manageable i.e., they have the transport capacity to take the plastics to a nearby collection site. This could be single trip or a number of drop-offs throughout the year, as and when required.

The existing agri-chemical scheme has 118 drop-off sites nationally where farmers, growers and farm contractors can drop-off their agri-chemical containers and drums. These sites are mostly located at farm retail stores. This approach has proved to be successful with increasing farmer and grower participation, especially over recent years.

The farmer and grower survey (January 2021) re-confirmed that there continues to be a high level of farmer motivation to drop-off their plastics. A stated willingness to use local collection sites so long as they were around 25km from the farm gate. It was also clear that there was strong support for the establishment of a national network of multiple farm plastics collection sites.

A network of farmer drop-off sites will substantially reduce scheme costs and the level of scheme fees paid by the plastics producers (manufacturer or importer). It is anticipated that producers may partially absorb some of the additional costs due to market pressures,

especially where there is a large number of competitors. However, over time it is likely that producer prices will increase to cover the additional fee costs of these schemes.

It is important to note that the planned drop-off sites will not cover all farms. To ensure no farmer or grower is left behind, on-farm plastics collections will be offered to farmers and growers under the following criteria:

1. where the weight of and individual farms plastic exceed set weight limits; and
2. where farms are significantly more than 25km from any established collection site – remote farms

Many opportunities exist to motivate farmers and growers to put in the effort to drop- off their farm plastics and meet the GPSS objectives, through:

1. tangible (price) or intangible (non-price) incentives; and/or
2. motivating farmers and growers through creative marketing and engagement approaches to make the effort to recycle and drop-off their plastics

The GPSS design has assessed the need for incentives to raise farmer, grower and farm contractor participation in the scheme. Agrecovery's and Plasback's recent experience is that Fonterra's cooperative price difference incentive scheme has increased members participation in recycling. With farmers and growers feeling the pressure of rising costs and further regulation, applying incentives to drive participation will be considered an important tool to drive change.

The intention is to work through possible and viable price and non-price incentive options during the first three years of the scheme. The initial focus will be on non-price marketing and promotion efforts to grow participation. Current assessments show participation will likely increase significantly over the first three years through targeted marketing efforts alone, but by how much remains unclear.

There is already significant momentum within the farming community to recycle, given it is the right thing to do. In addition, the current Agrecovery and Plasback voluntary schemes highlight that farmer participation has grown rapidly over the past few years and this is likely to continue for the foreseeable future.

The GPSS aim is to have over 90% of farmers participating in the GPSS by 2026, but we do know with schemes of this nature that there could be up to 20% of users not participating after the initial three years. Once the scheme is underway and more data is obtained the GPSS PSO will pursue targeted price or non-price incentives to incrementally bring the slow participators into the scheme.

Phase 4 feedback during the scheme design process helped sharpen the focus on workable and sustainable scheme options. This included feedback from the product stewardship advisory group (PSAG), a bale wrap and silage sheet reference group, farmer's reference group, the Ballance and Ravensdown fertiliser co-operatives and local government. Preferred options were identified and refined from the feedback received. This resulted in the design of the GPSS comprising three farm plastics waste stream and the existing agri-chemical product stewardship scheme added as a fourth farm plastic waste stream.

Phase 5 focused on more formal feedback on the GPSS, and the four proposed farm plastic waste streams as designed in phase 4. This was conducted through a survey across a broad spectrum of 120 potential and actual stakeholders – a good response rate of over 40% was received.

The survey was designed to illicit a yes (I support) or no (I do not support) each of the key elements of the GPSS design and implementation processes. The findings provided strong endorsement for the delivery and operational elements of the scheme and the four streams under the GPSS. The survey findings are shown in more detail in Appendix J.

Phase 6 feedback was structured to ensure the schemes as designed and endorsed were reviewed by the PSAG, a farmer's reference group and the Agrecovery Board, whose trustees represent significant industry stakeholders. To also ensure the GPSS designs would more easily progress through the necessary legal and regulatory processes, a review by Mahony Horner Lawyers was requested. A review of the scheme cost recovery model was also requested from Price Waterhouse Coopers (PwC).

These reviews confirmed the cost model as being fit for purpose and that there were no legal barriers to taking the GPSS through to the next phase and submitting the report to the MfE. The PwC report is shown in Appendix H and the Mahoney Horner letter in Appendix I.

Feedback from the PSAG

To engage with stakeholders and meet the requirements of the MfE guidelines three Product Stewardship Advisory Group (PSAG) meetings were conducted, one in late 2020, a second in April 2021, and a third on 15 December 2021.

The April 2021 meeting was to canvas PSAG perspectives on initial ideas for new product stewardship schemes or streams as described in the Agrecovery scheme options paper, 27 April 2021. The paper was generally supported but it was evident more work was required to fully define the scheme. There was a noticeable focus on lower-level operational aspects at an individual entity level with less understanding of the core elements of the proposed schemes. As a result, an 'At A Glance' two-page document was prepared and supplied to those who wanted more conceptual information rather than the detail.

In July 2021 PSAG members, the farming industry and other stakeholders were surveyed as part of a wider Agrecovery stakeholder survey seeking endorsement of the GPSS design. The survey findings highlighted that over 85% of the respondents endorsed the core design and implementation elements of the proposed scheme.

A final PSAG meeting was held on 15 December 2021 to update stakeholders on the final GPSS design. A summary report on the scheme was provided in advance of this meeting. On 22 December 2021 the full GPSS design report was sent to this PSAG group and a number of other stakeholders for final feedback on the scheme. An addendum to the final report outlining the final feedback and any resulting changes to the final report (21 December 2021) was submitted to the MfE in early March 2022. The list of attendees at this meeting is shown in Appendix M.

Feedback from farmers, growers, and the farmers reference group

Feedback from farmers and growers – survey January 2021

Farmers and growers are key to the success of the proposed GPSS, and accordingly initial engagement has focused on these stakeholders. The formal and informal feedback has highlighted that as a community they:

- want to do the 'right thing' and recycle their end-of-life farm plastics
- are willing to make the effort and take their farm plastics to a nearby drop-off site
- see direct cost as a significant barrier to participating in recycling their farm plastics.
- offering enticing incentives to recycle farm plastic waste appears to be very successful in changing farmer and grower behaviour

On 11 November 2021 a meeting was held with a group of Southland farmers who are part of the 'Between the Domes Catchment Group'. These farmers use large quantities of farm plastics, particularly bale wrap, and have been looking for solutions to manage this plastic waste. This group strongly endorsed the GPSS as planned. The group also supported a wider Southland pilot over the 2022 and 2023 years, pre-scheme commencement, to test the planned approach in a region where all forms of farm plastics are used in significant quantities.

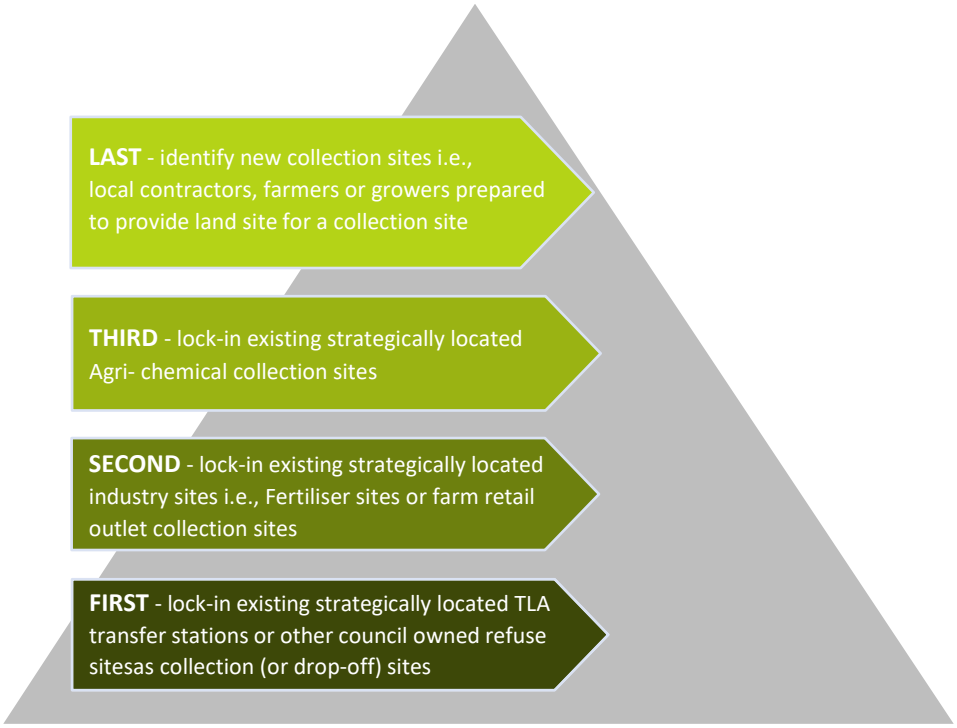
There was a strong belief within this group that the uptake of the GPSS would be strong and farmers would get on-board relatively quickly supported by good communication and education.

Feedback from GPSS producers

The designs have been based on the notion of 'extended producer responsibility', or EPR, where the producers (manufacturers or importers) of the GPSS plastics fund all the direct costs associated with the new scheme – following international best practice. Therefore, it has been important to seek as much feedback from producers as possible on funding the scheme and the cost recovery fees and underlying fee methodology.

To assess producer perceptions of the proposed funding arrangements the stakeholder survey

(July 2021) asked a wide range of stakeholders including a number of producers the following:



"It is recommended that all scheme costs be funded through fees paid by the farm plastics producers (or distributors)"

A positive response from over 85% of the respondents was received - a high level of satisfaction for the proposed funding arrangements. There was general acceptance amongst producers that they have an obligation to fund the collection and treatment of the end-of-life farm plastics.

Feedback from potential collection site owners and/or managers

The GPSS implementation proposes the establishment of approximately 145 multi-farm plastics collection sites nationally. The operating model assumes the use of some of the existing single farm plastics collection sites, where optimally located, to complete a national network of multi plastics drop-off sites.

The plan over the next two years is to engage with the many existing single site ownersto determine if their optimally located current sites could be used as multi-plastic drop-off sites. The establishment of sites will follow the logic shown in the diagram below.

Initial Discussions have been undertaken to test the willingness of existing single collection sites owners to use their sites as multi-plastics GPSS sites. In addition, there have been discussions with a number of TLA's to enable their transfer stations to be used as collection sites

- Discussion with the Invercargill City Council on 11 November suggested they are comfortable using their transfer stations as multi-plastics GPSS drop-off sites
- Environment Canterbury & Tauranga City Council highlight they are also generally open to using their transfer stations and other refuse facilities where there is sufficient space and management in place to accommodate the GPSS requirements.
- Initial engagement with Smart Environmental, contracted operators of 45 transfer stations, mostly rural, suggests a willingness to work with the GPSS manager on utilising these sites for the collection of farm plastic.
- Discussions with existing agri-chemical collection site owners suggests there is less enthusiasm for using their single containers and plastics collection sites as multi-farm-plastics sites if it increases the size of the current footprint.

Options to establish new collection sites will be considered where there is no existing site that can be used. There is the option to use farmers land, where agreed, to establish a collection site to service a number of local farmers and growers i.e., a valley community.

A discussion with two Southland transport entities (Scully's Transport, Dipton and Northern Southland Transport, Lumsden) confirmed there are opportunities to use their business site(s) as multi-plastics GPSS collection sites. There are natural synergies with having collection sites at transport business locations which will be explored further over the 2022 and 2023 years.

Feedback from Plasback 2021 Ltd

Plasback 2021 NZ (Plasback) operate a mostly bale wrap and silage sheet voluntary and accredited product stewardship scheme. It was seen as critical that Plasback, a significant player in the farm plastics recycling sector, was consulted with a focus on resolving all issues where possible.

1. Agrecovery reached out to Plasback in July 2021 for comment on the proposed GPSS – a four stream (scheme). Plasback provided the MfE with "A minority report on the

recommendation for a new farm plastics product stewardship scheme(s) proposed by Agrecovery".

2. In February 2022 Agrecovery reached out to Plasback for a second time along with the wider farm plastics project Product Stewardship Advisory Group (PSAG) for comment on the final draft of GPSS co-design report as at 24 December 2021. The response to this feedback can be seen in Appendix E as an addendum to the final draft report dated 25 March 2022.

Agrecovery and Plasback have engaged on the issues raised in the minority report and the February 2022 Plasback feedback. As at 3 August 2022, both parties have worked through the issues and concerns and reached agreement on all the Plasback concerns. The key concerns and resolutions are described below:

1. *Plasback suggested that Agrecovery's proposal potentially presents a serious threat to the on-going operation of the existing Plasback accredited scheme.*

Agrecovery and Plasback have agreed to work together to deliver the GPSS, as designed. Plasback will continue to collect and treat bale wrap and silage sheet and are also willing to expand into other GPSS farm plastics – a multi-farm plastics GPSS deliver model. Agreement was also reached on the use of each other's operational assets i.e balers and to incorporate the infrastructure developed by Plasback since their establishment in 2006 into the GPSS.

2. *Plasback suggests it is competing with Agrecovery for farms plastics collections.*

Agrecovery and Plasback have reached agreement on how they see the GPSS operating with no competitive tension between the parties. They will seek to coordinate their activities and provide an optimal and seamless service for farmers.

3. *Plasback acknowledges it does not meet important criteria set out in the MfE gazetted guidelines.*

Plasback and Agrecovery have worked through the issues of meeting the MfE guidelines and both parties will ensure compliance with them. Importantly, the GPSS will provide a free

service to farmers, growers, and farm contractors (end users of the plastics), operate a not-for-profit product stewardship scheme and meet all other MfE gazetted guidelines.

4. *Plasback suggests the Agrecovery scheme is not backed-up by a collection infrastructure market access, experience of the Plasback schemes, and has no prior scheme in operation.*

There is now recognition between Agrecovery and Plasback that both parties bring vital experience and knowledge to the management and delivery of the GPSS, as designed. Both parties agree to share their knowledge across the continuum from farm plastics collections to exporting and working alongside local recyclers.

5. *Plasback suggests the agriculture industry is not best served by further fragmentation of a small New Zealand market for farm plastics. It will create confusion and duplication of schemes which will be counterproductive. That Plasback has created a brand for the collection and recycling of several different plastic waste streams.*

Agrecovery and Plasback have now agreed to work closely to deliver the GPSS and to minimise the confusion for all stakeholders. The roles for each will be clearly defined and marketing and communications are planned to build on the branding already in place and for both to be seen as seamlessly working together.

6. *The Agrecovery scheme is seriously flawed as it allows drop-offs of loose plastics and highly contaminated material*

Agrecovery and Plasback have agreed to strict checks being in place to ensure the returned farm plastics meet cleanliness and bundling requirements. Standards of cleanliness and how they are bundled will be established and widely communicated to all farmers, growers, and farm contractors and drop-offs at collection sites will be delivered in liners or recycled bags and inspected for cleanliness and contamination levels.

The farmer will be registered on the GPSS information system, and the volumes and state of the plastics will be recorded on this portal. Farmers will get feed-back where improvements may be required.

7. *Plasback supports a future regulated approach to farm plastics recycling and see their pricing model as competitive and efficient under a regulated regime. They suggest Agrecovery's proposed scheme is adding compliance costs and are less efficient overall.*

Agrecovery has established a cost recovery model which has been quality checked by Price Waterhouse Coopers. Plasback has agreed to provide separate scheme cost information and share their experience of collecting farm soft plastics. Both Agrecovery and Plasback have agreed to undertake joint trials of the scheme to ensure the final design incorporates the best learnings from both previous approaches. This work will continue post the co-design report to ensure the costs and associated fees are credible and can be justified.

8. *Plasback have the notion that while the Agrecovery schemes will be free to farmers, industry will ultimately have the costs passed onto them.*

International practice highlights that those who create the waste are responsible for its clean-up – 'extended producer responsibility', or EPR. This solution requires regulation where those who produce the waste i.e. the farm plastic manufacturers, pay fees to have the plastics collected and recycled.

Agreement has been reached between Agrecovery and Plasback that producers and distributors will pay for the scheme, as per the gazetted guidelines. The fee may well be added onto the price for the plastics where the farmer and grower would pay. To minimise the fee costs, the GPSS has an expectation that many farmers will play their part in the recycling efforts and drop their plastics at a nearby collection site. This will significantly reduce the cost of the overall scheme. It is known that the majority of farmers and growers are willing to make this effort after feedback from a farmer survey conducted in January 2021.

In Summary

All of the concerns raised by Plasback over the period of the GPSS co-design have been resolved with a memorandum of understanding in place between the parties.

13. COST BENEFIT ASSESSMENT OF THE SCHEMES

The way New Zealand farmers, growers and farm contractors manage farm plastics is not sustainable. End-of-use farm plastics are largely being buried, burned, stockpiled, or disposed of at a waste disposal facility i.e., landfill.

The agri-chemicals and containers schemes are an example of what can be achieved where there is now over 50% recovery of what the signed-up brands put out into the market, with over 500 tonnes of plastics returned in 2020/21.

No data is available on the growth of farm plastics specifically taken to landfill in New Zealand, but all plastics disposed to landfill increased 48% from 2010 to 2019, and continues to increase – *Waste Reduction Work Programme, MfE, August 2021.* This indicates that plastic use is likely to continue to grow over the next few years and will become a more pressing environmental concern.

New Zealand and the world's agricultural sectors concede they need to do better. The negative impact of plastics entering the environment are stark and well documented, leading to governments around the globe taking various forms of action to reduce plastic use and recycle where appropriate. The net zero emissions goal discussed at COP26 (Glasgow 2021) will also put pressure on countries to reduce plastic use. Having a well designed and implemented GPSS will enhance and protect New Zealand's international reputation around its environmental performance and reduce a growing public concern.

In addition, countries where New Zealand has an export focus have an increased need for regulatory assurances that environmentally centred farming practices are in place domestically. This is especially applicable to animal product exports where a price premium may be gained where farmers can demonstrate good environmental practices to their overseas buyers.

The ability to carry out an evidence-based cost benefit analysis for the GPSS is difficult with an absence of sound dollar benefit data. Therefore, the benefits of the scheme have been assessed rather than quantified in this document.

The intangible benefits of collecting and treating farm plastics in New Zealand are:

- New Zealand leading the way internationally in collecting and treating farm plastics and contributing to a drive to net-zero carbon emissions
- reducing greenhouse gasses and climate change impacts by removing farm plastics from being burnt
- reducing soil contamination from farm plastics being buried and reducing soil pollution more generally
- less farm plastics in landfills and reduced landfill costs and impacts
- compliance with the government thrust to move farm plastics into a circular economy
- protecting New Zealand's waterways
- reduces the problem of micro-plastics making their way into the environment
- meeting increasing public concern about the need to reuse and recycle plastics
- creates a positive behavioural change around plastics reuse and recycling
- recycled plastics can be used for a variety of different and useful purposes

The value benefits from spending approximately $12 million of GPSS cost annually on collecting and treating farm plastics nationally are expected to be significant. The environmental benefits are estimated to out-weigh scheme costs over both the short and longer term.

The combined behavioural change, societal and economic benefits from delivering the GPSS will add up to material environmental benefits. In addition, the GPSS can be viewed in light of contributing to the global environmental challenges we face and seen as a good investment and the 'right thing to do'.

14. INCREASING SCHEME PARTICIPATION

A critical success factor to the success of the GPSS will be farmer, grower, and farm contractor participation in the collection of all four farm plastics waste streams.

Barriers to farm plastics collections

- insufficient economic and/or regulatory incentives for the separate collection of farm plastic waste
- insufficient incentives for farmers, growers and farm contractors to participate in the separate collection of farm plastic waste
- insufficient awareness among farmers and growers of the scheme(s) existence and how to access the GPSS through collection sites and on-farm collections

The GPSS has been designed and will be implemented as four farm plastic waste streams with their own ring-fenced costs and fees. The statutory requirements will provide the necessary protections to ensure fee payer compliance and scheme performance responsibilities are adhered to. A not-for-profit PSO will manage the GPSS and there is confidence farm plastics collections and treatments will be free to farmers and growers.

Attaining and maintaining farmer, grower, and farm contractor participation in the GPSS will require significant investment and effort from the GPSS PSO and additional support from stakeholders.

A targeted and comprehensive communication, promotion and marketing plan will be established and initially rolled out in 2023 pre-accreditation and throughout the early years of the scheme. It is vital that stakeholders have a good understanding of the GPSS operational requirements, and importantly, participants and contractors have a good awareness of their farm plastics collection and treatment obligations.

A diverse range of communication channels will be used to motivate farmers, growers, and farm contractors:

- visible leadership at a national level by the GPSS management entity Board of Trustees Chair and the Chief Executive Officer
- visible leadership from GPSS management staff by attending and presenting at rural meetings and events i.e., farm field-days, farm adviser and country women's institute meetings
- targeted information to all farmers, growers, and farm contractors so they fully understand the scheme and their responsibilities i.e., cleaning and presenting the plastics
- utilising existing media channels to market the scheme and its performance i.e., farmer news
- working with influential farming associations to increase participation i.e., Federated Farmers, Horticulture NZ, Dairy NZ, Beef and Lamb, and environmentally aware companies.
- using prominent New Zealand individuals and Iwi to motivate farmers to participate
- communicating with individual farmers through the GPSS farmer and grower database – providing scheme updates, changes to standards and procedures and good news stories
- using the GPSS collection contractors to engage will local farmers and promote participation in the various streams

The Agrecovery farmer survey conducted in January 2021 highlighted farmers would respond to incentives to drive participation rates. Fonterra has taken this approach and are prepared to pay a premium where their member farmers demonstrate they are recycling their farm plastics. Over the next two years, pre-GPSS regulation and accreditation, Agrecovery will be exploring price and non-price incentives to push farmer participation to the highest levels possible.

GPSS management's objective will be to have farmer, grower, and farm contractor participation rates of over 90% after the first few years of the scheme. This will require reaching out to all farmers and understanding what will motivate them to participate in the GPSS. The following stakeholder's focus will be:

- Farmers, Growers & Farm Contractors
  - an explanation of the GPSS end to end design, including roles and responsibilities
  - education on how to support the GPSS i.e., cleaning and preparation standards
  - information about drop-off locations and on-farm collection schedules, as required
  - information on the scheme through a performance dashboard
  - targeted news about the GPSS
- Producers
  - an explanation of the scheme end to end including roles and responsibilities
  - education on how to support the scheme e.g., continuous improvement and best practice
  - information about fees – their role and responsibilities including compliance and enforcement
  - fee management responsibilities
  - performance targets and reporting of cost collection activity
  - targeted news about the scheme
- Sector Agencies i.e., Federated Farmers, Dairy NZ, Horticulture NZ, and other rural associations
  - an explanation of the scheme's end to end design, including roles and responsibilities
  - education on how to support the scheme
  - performance targets and reporting of activity
  - targeted news about the scheme
- Collection and Treatment Contractors
  - an explanation of the scheme's end to end design, including roles and responsibilities
  - education on how to support the scheme
  - targeted news about the scheme

15. ASSESSMENT OF OPTIONS

During the design phase a number of options were explored to determine the most preferred GPSS legislative and delivery options. The options and the overall assessment of the criteria under each option is shown in the table below.

This assessment evaluated whether the scheme options were effective, fair, and efficient. Effective in terms of reducing the environmental impacts of farm plastics and fair as to who should bear the costs of a scheme and would the scheme encourage full participation. A scheme where there was no direct cost to the end user (farmer, grower, or farm contractor) and the delivery and operational model is sustainable, well received, and doable.

Firstly, an assessment of the legislative options found that a regulated and accreditedscheme would deliver a 'Yes' to all the criteria, therefore the preferred option. Secondly, an assessment of the delivery options found that the preferred option was to provide a farmer and grower drop-off and a targeted on-farm visit scheme, built around a hub and spoke model, that coordinated local and regional activities.

These provide a fair, low cost, and operationally efficient delivery option. It allows farmers and growers to play their part by dropping-off their farm plastics, therefore considerably reducing the collection costs of the scheme. It is scheme that is operationally sustainable and achievable. Initially setting up eight recovery hub sites nationally was seen as an optimal number given the expected volumes of plastics.

While a total on-farm collection scheme also met the criteria, it was rejected because of the prohibitive cost of visiting up to 38,500 individual farms across New Zealand (Federated Farmers data). The logistics of scheduling up to 38,500 farms collection visits, some more than once annually, would be hugely complex and resource intensive – and likely to be prohibitively expensive.

Importantly, all the preferred options met the criteria of reducing environmental harm and that funding would come from the producers of the farm plastics. In this way applying the concept of extended producer responsibility, or EPR, and providing a free service for farmers, growers and farm contractors that also meets the MfE gazette guidelines.

	Effective	Effective	Fair	Fair	Efficient	Efficient
	Circular resource use and waste minimisation	Reduction in environmental harm	Move costs and responsibilities to producers	Encourage full sector participation	Minimal costs placed on the public and end users	Sustainable and efficient delivery mechanisms
Legislation						
Voluntary & Accredited Scheme	Yes	Yes	Unlikely (Free-rider issues)	No	Yes	Yes
Regulated & Accredited Scheme	Yes	Yes	Yes (Compliance and enforcement)	Yes	Yes	Yes
Take-back Scheme (regulated & accredited)	Yes	Yes	Yes	Unlikely (Moderate participation)	No	Unlikely (No tangible incentives)
Delivery						
Farmer/Grower drop-off at regional recovery hub	Yes	Yes	No (High farmer and grower cost)	No	No (Farmer and grower incur cost of collection)	No
Farmer/Grower drop-off at nearby site & targeted on-farm Collections	Yes	Yes	Yes	Likely (With incentives and targeted marketing focus)	Yes	Yes
All on farm collections	Yes	Yes	Yes (Cost is prohibitive)	Yes	Yes	Yes (Operationally complex)
Eight regional recovery hubs	Yes	Yes	Yes	Yes	Yes	Yes
Two regional recovery hubs (one in the South and one in the North Island)	Yes	Yes	Yes	Yes	Yes	No (Transport costs high and logistics complex)

16. IMPLEMENTATION PLAN

January 2022 to June 2024

- support MfE to progress the GPSS regulations and accreditation processes
- proposed scheme design and costs have been fully communicated to all GPSS participants and stakeholders
- fee payers notified of the GPSS stream fees and fee payment processes agreed
- to agree with existing single farm plastics collection site owners to establish an optimised nationwide network of multiple farm plastics collections (drop-off) sites along with site management arrangements
- new collection sites established, if required
- establish procurement arrangements for GPSS fixed assets agreed and how they will be funded
- GPSS policies, standards and procedures established in advance of accreditation
- tender documents along with pro-forma contracts drafted for release to prospective collection and recovery hub contractors in early FY2024
- performance measurement indicators, reporting and monitoring regime and processes established and tested
- communications, promotion, and marketing plans developed, and early messages disseminated
- communications and promotion material disseminated pre GPSS accreditation
- helpdesk scoped and prepared
- IT systems developed and tested along with a deployable farmer database
- resourcing the GPSS to meet the management and governance requirements underway
- Agrecovery website updated to ensure all participants have sufficient information to participate in the GPSS
- engagement with Iwi on ensuring the scheme successfully applies the conceptof kaitiakitanga
- health and safety GPSS requirements

July 2024 onwards

- GPSS regulated and accredited scheme in effect
- fees being collected as per the regulation
- fee collection processes in place
- collection sites agreements in place and locations communicated to participating farmers, growers, and farm contractors
- collection site opening hours and management practices communicated widely to participants
- fixed assets purchased and in place
- GPSS policies, standards and procedures completed and disseminated
- collections contracts in place along with contract management and monitoring
- performance measurement data being collected, collated, and reported
- communications, promotion, and marketing plans in action
- helpdesk in place and support information disseminated
- IT systems deployed to contractors and others as required
- health and safety protocols and practices in place
- resourcing for the GPSS in place
- agri-chemical scheme transition to the GPSS underway
- Agrecovery website updated and accessible to all stakeholders
- Iwi engagement plan in place and communicated
- all policies, procedures, and standards in place to ensure the PSS operates effectively and efficiently and all stakeholders understand their responsibilities
- Board of Trustees strengthened, and individual scheme reference groups established along with Board performance measures and reference group operating protocols

17. ALLOCATION OF GPSS STREAM COSTS

A fine-grained breakdown of the individual stream costs is shown in the GPSS cost recovery model – Green-farms product stewardship scheme cost recovery model, 21 December 2021, Agrecovery Foundation.

The four stream producer fees and how they have been derived mathematically are also shown in the model. The model has been reviewed by PwC and found to be fit for purpose and robust for calculating scheme costs and scheme cost recovered fees.

It is important to ensure transparency and equity on how the scheme costs and fees have been derived for regulatory consultation purposes. More importantly, how the overall GPSS costs have been allocated across each of the four farm plastics streams. In addition, that the underlying basis for the cost allocations are robust and defendable and seen as fair and reasonable.

The most equitable methodology has been to use projected individual stream return rates in 2024, the first year of the GPSS. These are the projected weight of the plastics collected from farmers, growers, and farm contractors in that year.

The logic being that individual stream return rates, in tonnes of plastic, will more accurately reflect what the fee payers should pay each year over the first three years of the GPSS, comprising the:

- number of plastics recovered by weight
- effort required to collect the plastics in a given year
- collection and treatment complexities and challenges around each of the four GPSS plastic waste streams

The alternative approach is to allocate cost based on a forecast of the volumes sold in 2024. However, this method does not take account of the effort required to collect and treat the various stream plastics, nor what is recovered.

Stream Name	Percentage of GPSS plastics sold in year 2024 that are projected to be returned	Projected GPSS plastics returned in 2024 (Tonnes)
Bale Wrap & Silage Sheet	35%	4,549
Small Bags	60%	600
Large Sacks	60%	773
Agrichemicals and Containers	65%	736

Note: tonnages returned for the agri-chemical containers and drums stream have been based on known tonnages collected up until 2020/21. They have been extrapolated to 2024 based on the agri-chemical forecast growth rates. The growth rates are calculated in the GPSS cost recovery model.

The majority of the operational costs have been calculated on a total GPSS basis and then allocated across the four waste streams using the percentage of tonnages returned.

The individual stream cost allocations are shown in the table below.

Stream Name	Cost Allocation Rate
Bale Wrap & Silage Sheet	68.3%
Small Bags	9.0%
Large Sacks	11.6%
Agrichemicals and Containers	11.1%

The stream cost allocation rates are justified on the following basis:

1. Bale wrap and silage sheet:

    - is by far the largest in terms of tonnage and the effort required to collect and treat.
    - are bulky and expansive film plastics when compared to the other farm plastic streams.
    - the weight of these plastics may require an on-farm collection for larger users.
    - at collection and hub recovery sites significantly more space and resources will be required than for the other plastics streams.

2. Managing the small sacks and bags stream should be straightforward to collect, clean, and treat. Large sacks will be slightly more bulky and therefore slightly more challenging than the small sacks and bags scheme to manage.

3. Agrichemical HDPE plastics will require a similar amount of effort to collect and treat as the small and large sacks and bags schemes. This packaging is slightly bulkier to compress because of the volume of air in the containers and drums and the need for additional cleansing.

18. SCHEME COSTS

Scheme costs have been based on the scheme design and implementation elements described in section 6 of this document.

Total individual stream costs over the first three years of the GPSS are shown in the tables below:

Stream	FY2024	FY2025	FY2026
	$	$	$
Bale Wrap & Silage Sheet	5,773	5,883	5,995
Small Bags	1,955	1,992	2,032
Large Sacks	1,996	2,035	2,074
Agri-chemicals and Containers	2,643	2,502	2,551
TOTAL	**12,388**	**12,412**	**12,653**

Note: Totals exclude GPSS collection and hub recovery asset purchase costs

Cost breakdown by stream over the first three years of the FPP.

FFP	Bale Wrap & Silage Sheet Stream	Small Bags Stream	Large Sacks Stream	Agri-chemicals and Containers Stream
System Costs	$000	$000	$000	$000
FY2024	1,586	1,346	1,236	1,904
FY2025	1,612	1,372	1,260	1,737
FY2026	1,639	1,399	1,284	1,771
Collection Costs				
FY2024	2,573	339	437	416

FY2025	2,625	346	446	425
FY2026	2,677	352	455	433
Treatment Costs				
FY2024	1,339	176	227	217
FY2025	1,365	180	232	220
FY2026	1,393	184	237	225

Note: Fixed asset and start-up costs have not been included in the tables above. Funding for these costs will be addressed in consultation with the MfE.

GPSS Cost Recovery Model Documents:

'Green-farms Cost Recovery Model (Microsoft excel spreadsheet) covering the GPSS four farm plastics waste stream product stewardship scheme 21 December 2021' - Agrecovery Foundation

'Green-farms Cost Recovery Cost Assumptions Report (Microsoft word document) covering the GPSS, 21 December 2021' - Agrecovery Foundation

GPSS Regional Costs

These costs cover all collections, recovery hub and asset costs.

Region	FY2024 $000
Auckland/Northland	1,294
Bay of Plenty/Thames Valley	988
Waikato/Central North Island	1,402
East Coast North Island	1,375
Wellington/Taranaki/Wanganui	1,278
Marlborough/Nelson/West Coast	1,082
Canterbury	1,272
Otago/Southland	1,088
TOTAL Regional Costs	**9,777**

Note: Asset (infrastructure establishment) costs are included in the above table.

GPSS Collection Costs

These costs cover site collections (transport), site management and contract management costs.

Region	FY2024 $000
Auckland/Northland	432
Bay of Plenty/Thames Valley	407
Waikato/Central North Island	473
East Coast North Island	581
Wellington/Taranaki/Wanganui	415
Marlborough/Nelson/West Coast	447
Canterbury	566
Otago/Southland	443
TOTAL Collection Costs	**3,766**

Note: Asset costs are excluded from collection costs in the above table

GPSS Recovery Hub Costs

These costs cover hub management, hub cost sharing, hub materials and hub transport.

Region	FY2024 $000
Auckland/Northland	262
Bay of Plenty/Thames Valley	242
Waikato/Central North Island	262
East Coast North Island	236
Wellington/Taranaki/Wanganui	262
Marlborough/Nelson/West Coast	253
Canterbury	262
Otago/Southland	264
TOTAL Recovery Hub Costs	**2,043**

Note: Asset costs are excluded from recovery hub costs in the above table.

19. COST RECOVERY FEES

Cost recovery fees for each of the four GPSS streams are shown in the tables below.

Agri-chemicals and Container's stream

Category	Up to 60L	>60L	IBC's
Per unit	$	$	$
Packaging	0.100	0.025	0,020
Group 1	0.010	0.010	0.010
Group 2	0.030	0.030	0.030
Group 3	0.040	0.060	0.060

Note: the above fees have been calculated separately for a three-year period under the assumption the agri-chemical stream would continue as previously planned as a separate product stewardship scheme. This fee structure will continue until this scheme is fully transitioned into the GPSS as an individual farm plastics stream by FY2026, at which time the fees will be adjusted to align with the other GPSS streams.

Bale Wrap and Silage Sheet stream

Note: that the fees below are shown for the first three years for the bale wrap and silage sheet, small bags, and large sacks streams, along with a proposed three-year fee.

Scheme	FY2024	FY2025	FY2026	Proposed 3-year Fee
Per tonne	$	$	$	$
Bale Wrap	444	435	426	430
Silage Sheet	444	435	426	430

Note: as a reasonable test the fees charged for bale wrap recycling programme in Ireland in 2021 ranged between 180 to 230 Euros per tonne. This equates to a New Zealand dollar fee of just under $400 per tonne.

Small Bags stream

Scheme	FY2024	FY2025	FY2026	Proposed 3-year Fee
Per unit	$	$	$	$
Seed Bags	0.20	0.19	0.18	0.20
Feed Bags	0.20	0.19	0.18	0.20
Fertiliser Bags	0.20	0.19	0.18	0.20

Over the first three years of the scheme further investigation into different fees for more

difficult to process farm plastics, or eco-modulation, will be assessed and promoted. In addition, the GPSS PSO will be working with producers over the short to medium term to move to more homogenous plastics across all farm plastics that can be more easily recycled.

Large Sacks stream

Scheme	FY2024	FY2025	FY2026	Proposed 3-year Fee
Per unit	$	$	$	$
Fertiliser and Grain Sacks	3.41	3.37	3.34	3.40

20. COST RECOVERY FEE COLLECTION

Fee Collection Approach

The intent within the scheme designs has been for the GPSS manager to establish:

1. a low transaction cost fee collection approach that is fair, efficient, and effective
2. to target fee-payers that are the producers of the farm plastics or are, as close as is feasible, to the producer/manufacturer along the GPSS plastics supply chain.

The approach has been to draw on the successful fee collection system used in the current voluntary agri-chemicals and containers scheme. This is a high trust approach that requires each of the agri-chemical container and drum plastics producers, primary distributors, and local agents to self-declare the quantities sold on a quarterly basis. The GPSS compliance regime will randomly verify these self-declarations to ensure fee-payer integrity and that scheme equity is maintained.

Self-declaration has been proposed as the method of fee collection over the first three years of the GPSS. This has worked well in the agri-chemical containers and drums scheme and is considered to be the most effective and efficient (low cost) fee collection mechanism to initially implement. As with all aspects of the scheme, this approach will be accessed and changed, if required.

Identifying where along the supply chain the fees should be applied will be determined by where it is most efficient, practical, and feasible to collect the fees.

The first option will be to collect the fees directly from the producer of the plastics. However, with much of the plastic packaging used by the farming industry imported, the emphasis will most likely be that local distributors of the product will be responsible for the fee collection.

For the substantial number of smaller (c.20kg) seed, feed and fertiliser bags, an alternative approach taken would be to collect fees from the retail distributors, being farm retail stores and horticulture centres, plus from those selling direct to the end-users.

For the larger ½ and 1 tonne plastic bags it is likely that farm contractors and suppliers using these bulk bags would likely have to make self-declarations.

A viable transactional option, which wouldn't be onerous to implement, would be to collect fees each quarter based on past usage rates, with a "wash-up" once a year to reconcile with the actual sales figures.

Work on fee collection and associated administration requirements will be agreed and established over the 2022 and 2023 years prior to GPSS scheme commencement in 2024.

Ability to target producers as fee-payers

International practice highlights a worldwide move to have the producers (manufacturers) of plastics fund all the collection, treatments, and recycling efforts.

The vast majority of farm plastics used on New Zealand farms are not manufactured domestically. Therefore, to collect fees efficiently and securely directly from overseas producers is not easily achievable for most GPSS farm plastics.

Fee collection options and feedback

Agrecovery has explored a number of cost recovery fee collection paying options

1. directly from the domestic or overseas producers (manufacturers)
2. from a domestic agent acting on behalf of the overseas producer
3. at the point of entry into New Zealand through the importer, possibly through the use of tariff codes
4. from a domestic distributor slightly further down the supply chain – those who first use

the farm plastic packaging domestically such as a feed, seed,or fertiliser supplier.

Optimal fee collection options across all fee payers for each scheme will be worked through over the next two years, prior to GPSS accreditation. It is expected that a range of fee payer options will be agreed.

Feedback and the July 2021 stakeholder survey highlights any or a combination of the four fee collection options would be acceptable to most potential fee-payers.

Discussions with two large fertilizer co-operatives in September 2021 confirms they see themselves as funders for the large sacks stream. Whilst they are not the producers of the plastics, they acknowledge an obligation to contribute to funding the stream in place of overseas fertiliser sack manufacturers.

Fee Management Process

Until there are near real time automated information systems in place that can accurately quantify actual sales volumes, fee-payers are expected to self-declare on volumes sold quarterly. The GPSS manager will establish a mechanism for the fees to be paid and will follow-up where declarations and payments are not received on time. MfE, or other government agency, will have a compliance and enforcement role to ensure fee payers meet their regulatory obligations.

Records will be kept to monitor fee payments. At the end of each year fee revenue will be reconciled with expected fee collections and fees adjusted as required at the end of the first three years. Small fee surpluses could be invested into continuous improvement projects, while large surpluses will require discussions with fee-payers on how to address the surpluses.

21. GPSS IMPLEMENTATION RISKS AND MITIGATIONS

The table below provides an overview of the key GPSS implementation risks and mitigations:

Risk	Severity	Likelihood	Mitigation
Problems progressing MfE regulation consultation	High	Low	MfE consultation preparation is robust with Agrecovery support
Inability to establish the planned GPSS collection sites on time	High	Moderate	Agrecovery has initial feedback from existing collection site owners that they will consider using their sites for FPP collections. The contingency is to use other local entities and farms to fill the gaps
Inability to procure the necessary assets in a timely manner – including funding	High	Moderate	Agrecovery has the capability of re-assigning its current cages and containers to provide cover in the shorter term. Landfill levies to councils may provide a future funding source for asset purchases and other temporary receptacles could be used until more permanent assets are acquired.
Recovery hub sites not fully established in a timely manner	Moderate	Low	A number of hub sites are operating at some level and agreements in progress (for the existing agri-chemical scheme and other recycling sites) while others have not started. Work over the next two years is expected to have all hubs fully operational by the accreditation timeline.
Computer systems not in place in time	Moderate	Low	An existing system has already been created and could be used for the GPSS

22. SCHEME FEE PAYERS

A number of current known fee payers for each farm plastics waste stream are listed in the table below, but this list is not comprehensive. It is expected additional fee-payers will emerge when the streams become active in 2024.

Agri-chemical Containers & Drums	Bale Wrap & Silage Sheet	Small Sacks & Bags	Large Sacks
Agrisource	Agpac	Seales Winslow	Ravensdown
Bayer NZ Ltd	ProAg	Ballance	Balance
Chemical Supplies	Independent Wrap	Mitavite	Dominion Salt
De Sangosse	Pacrite	NRM	FertCo

DeLaval	Integrated Packaging	Sharpes	Landco
Deosan	Zeus Packaging	Milligans	Hortigo
Donaghys	Webbline	Livamol	Total Fert
Ecolibrium Biologicals	Tulloch Farm Machinery	Yara	Terracare
Elanco	Nutritech	BASF	
Etec Crop Solutions		ICL	
Farm Source (Fonterra)		Dunstan Horsefeeds	
FMC NZ Ltd		Coprice	
Horticentre		Pioneer	
IXOM		Ancalf	
Nufarm		Farmlands	
Orion Agriscience		Fiber Fresh	
Oro Agri		McMillan	
Pan Pacific		Tux	
Post-Harvest		Hatuma	
Ravensdown		Moata	
Seasol		Purina	
Syngenta		H R Fisken&Sons (HRF)	
Terranova Seeds Ltd		Eukanuba	
United Fisheries		Country Harvest	
Waikaitu		Hills	

23. MEETING THE GAZETTED GENERAL GUIDELINES FOR PRODUCT STEWARDSHIP SCHEMES

The GPSS complies with all sections of the gazetted 'General Guidelines' for product stewardship schemes. Compliance with the core aspects is more fully described below. Namely, the expected product stewardship scheme effects and the expected product stewardship scheme contents.

Circular resource use:

The GPSS design and implementation aspects are more fully described in sections 3,4,6,8,9 & 10 with a focus on:

- minimising farm plastic waste through a national network of collection sites, on-farm

collections, and treatments at regional recovery hubs

- increasing end-of-life management and a transition to a circular economy through a well-designed collection and treatment infrastructure
- all recovered GPSS farm plastics go to recycling domestically and/or exported for overseas processing
- the objective is to have no GPSS recovered farm plastic going to landfill

Internalised end-of-life costs:

The GPSS costs and cost recovery fees are covered in sections 13, 17, 18, 19, 20 & 22 with the aim of:

- all scheme costs being funded by the producers of the farm plastics
- free GPSS farm plastics collection and treatment to farmers, growers, and farm contractors
- all orphaned or historical farm plastics collected and treated are covered by GPSS scheme costs.

Public Accountability:

The GPSS public accountability aspects are covered in sections 3, 4, 6 & 24 with a focus on:

- total transparency of all aspects of how the scheme works and clear on how the farm plastics, through a robust operating model, will be collected and treated
- well communicated and sign-posted collection site locations
- full reporting on the performance of the scheme to all stakeholders
  - effective and efficient management from collection to treatments to recycling and/or export
- targets are set and performance measured including those required to meet all statutory and internal reporting requirements

Collaboration:

- Collaboration is referred to throughout the document, in particular in section 12, with a strong focus on working through efficient outsourcing arrangements. Taking a

coordinated approach to farm plastics collections and treatment across all four farm plastics waste streams and working with any other farm plastics recyclers.

Governance:

The governance arrangement is described in sections 3, 4, 6 & 23 where the GPSS provides for:

- a scheme managed by a not-for -profit entity
- annual reporting on scheme performance
- robust and transparent GPSS oversight
- all governance activities in compliance with Commerce Commission guidelines including an open and transparent process for board appointments and operations

Scheme Operations:

GPSS scheme operations is covered in sections 3, 4, 6, 8, 9, 10 & 24 with a spotlight on:

- creating a sustainable, effective, and efficient delivery and operating model
- contestable service provision for collections and treatments
- regular and transparent reporting to the MfE, farmer, growers and farm contractors and other stakeholders e.g., fee payers
- secure record keeping
- a particular focus on training and educating participants and the GPSS personnel

Targets:

GPSS manager will develop relevant measures and has identified a number of meaningful and measurable scheme targets as described insection 23. The target setting process will focus on:

- timely reporting and a focus on using the data to report on and improve scheme performance
- performance against best practice
- routine environmental scanning to identify new innovations and improve practices

24. MEETING WASTE MINIMISATION ACT 2008 AND OTHER LEGISLATION

Waste Minimisation Act 2008 requirements

Clause 14 of the Waste Minimisation Act 2008 (Act) specifies the requirements for accreditation of product stewardship schemes. The following describes how the GPSS broadly meets clause 14 requirements of the Act.

It is important to note for the purposes of this section Agrecovery, as a not-for-profit charitable trust, has nominated itself as GPSS scheme manager. However, Agrecovery makes no presumption within this section or the wider report that it will be the assigned GPSS PSO role.

1. Scheme Management

Act requirements for accreditation Part 2, Clause 14

(a)'Identify the scheme manager'

GPSS manager will be the Agrecovery Foundation, Chief Executive Officer (CEO) - a charitable not for profit trust established under a Trust Deed dated 16 December 2005.

GPSS Governance

If Agrecovery is to be chosen as the scheme's PSO the existing Agrecovery Board of Trustees (Board) will be strengthened to provide governance, fiduciary and strategic oversight and direction over the scheme. A strengthened Board will provide governance over the GPSS, with Board activities and remuneration funded from GPSS cost recovery fees. Governance arrangements will be developed as part of the PSO accreditation process and will comply with the general guidelines established for Product Stewardship Schemes.

GPSS Reference Groups

Each farm plastics stream will have a dedicated reference group to support the PSO's decision making and provide an important linkage between the PSO and the individual stream stakeholders and participants. A protocol will be developed by the PSO that describes the reference group's roles and responsibilities. Reference group activities will be funded from GPSS cost recovery fees.

Management Functions

The PSO will provide management functions to ensure there is the necessary capacity and capability to meet the GPSS delivery and operational requirements and to also create an organisation that is 'right-sized' to manage this scheme. The costs and resources to adequately manage the four farm plastic streams are shown in the GPSS cost recovery model, 21 December 2021.

2. Scheme Scope and Plastic Product Brands

Act requirements for accreditation Part 2, Clause 14 (b)

'Provide a description of the scope of the scheme, including the brand of product to which it's applied'

Agrecovery will manage and facilitate all aspects of the farm plastics regulated and accredited product stewardship scheme. This will cover the:

1. Scheme Collections - to be managed through contractual arrangements to collect the GPSS farm plastics streams from all farmers, growers, and farm contractors
2. Hub Recovery Activities - to be managed through contractual arrangements to treat the-GPSS farm plastics i.e.
    a. sorting the plastics
    b. treatments to ensure the plastics can be processed
    c. handling i.e., baling, and bundling the plastics for transport and facilitating transport to recycling, for export or disposal

Known brands suppliers under this scheme are shown in section 22 of this report

3. Objectives and Measurement

Act requirements for accreditation Part 2, Clause 14 (c)

'**Measurable waste minimisation, treatment, or disposal objectives for the product; and timeframes for meeting the objectives'**

- The GPSS is fully implemented as a regulated and accredited scheme within FY2024
- 95% of all drop-off collection and all hub recovery sites are in place and collection contracts signed and operating nationally by December 2024
- 90% of all farmers and growers are participating in the GPSS by December 2029 with incremental increases achieved from a 2024 baseline over each of the five years – December 2024 to December 2029
- Scheme return rates meet at least 85% of all associated plastics by 2029
- Farmer and grower overall satisfaction with Agrecovery's performance is greater than 75 percentage points in all five years of the scheme

Measurement Methodology

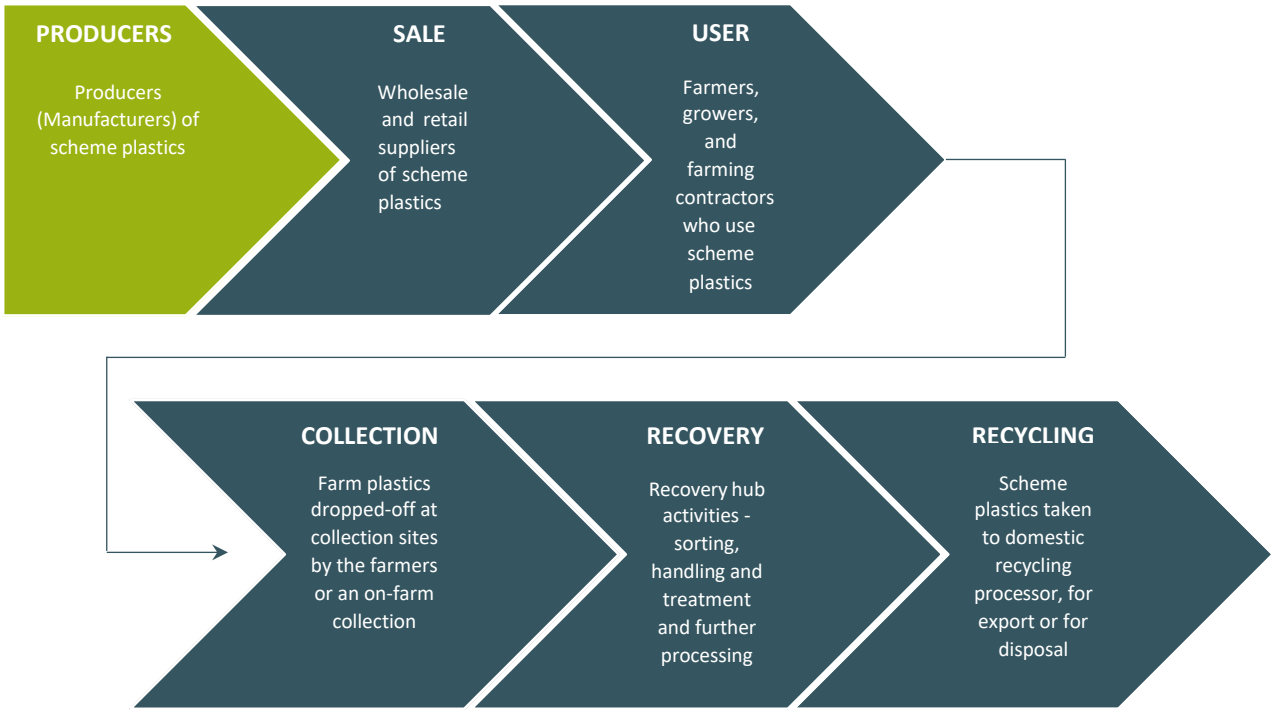
- a farmer and grower survey will be undertaken in 2025 to establish a baseline of participation in the scheme
- a farmer and grower stakeholder satisfaction survey will be undertaken in 2026 and 2028 to assess stakeholder perceptions
- the survey will be conducted by an independent survey organisation and the results made public on the Agrecovery website

4. Class of Persons Involved in the Scheme

Act requirements for accreditation Part 2, Clause 14 (d)

'Class of persons involved in the design, manufacture, sale, use, servicing, collection, recovery, recycling and treatment of the product'

The class of persons involved in the Farm Plastics Regulated Product Stewardship Scheme are shown in the diagram below



5. Persons who have Agreed to Participate in the Scheme

Act requirements for accreditation Part 2, Clause 14 (e)

'List the persons who have agreed to participate in the scheme and assign responsibility to them for meeting the schemes objectives'

Producer (Manufacturer or Importer)

Names of producers are listed in section 22 of this document.

Use

The end-user of the scheme plastics are farmers, growers, and farm contractors. This group is too large to list as there are around 38,500 individual farmers and growers in New Zealand.

Sale

There are a large number of wholesalers and retailers who sell farm plastics, too many to name in this section. There are also a number of overseas producers supplying the New Zealand farm plastics market.

Collection

Agrecovery will manage all collection functions nationally through a number of delivery contracts. Each of the eight geographic regions will have a collection contractor who will carry out the scheme collections

Recovery

Agrecovery will manage all recovery hub functions nationally through a number of service delivery contracts

6. Making Decisions, Operational Control and Record Keeping

Act requirements for accreditation Part 2, Clause 14 (f)

'Specify the arrangements for –

1. making decisions under the scheme:
2. the control and overall operation of the scheme:
3. keeping records and making reports under the scheme'

Decisions on the scheme will be made by the Agrecovery Foundation as the scheme manager. However, Agrecovery will consult with relevant stakeholders and scheme participants on decisions that impact them.

Overall control over the scheme operation will be with the Agrecovery Foundation, including the management of all contractual arrangements for plastic collections and treatments.

Agrecovery will keep comprehensive records of the scheme, sufficient to meet all statutory and other reporting requirements to the Agrecovery Board, scheme participants, wider stakeholders, the MfE and Minister.

Decision Making Framework

The PSO will manage the GPSS in a manner that is inclusive, timely and will ensure decisions are made in consultation with those impacted. The PSO will create a strong decision support network from whom important decisions can be examined and analysed:

- advice from the Scheme's Board of trustees
- expertise of the individual scheme's reference group
- utilising the extensive experience gained in managing the agri-chemical and soft farm plastics voluntary product stewardship schemes

Reporting Framework

Reporting on the performance of the FPP schemes annually will be provided to:

- farmers and growers
- wider stakeholders
- MfE and the Minister

7. Scheme Expiry Date

Act requirements for accreditation Part 2, Clause 14 (g)

'Specify the scheme's expiry date'

The Farm Plastics Product Stewardship scheme will expire on 20 December 2029

Expiry and Re-accreditation

The GPSS will expire on 20 December 2029. Depending on the ongoing success of the scheme in meeting its objectives, re-accreditation of the scheme may be pursued in 2029.

8. Compliance and Enforcement

Act requirements for accreditation Part 2, Clause 14 (h)

'Identify the processes for compliance and enforcement of any agreements between participants of the scheme'

All compliance and enforcement activities pertaining to the regulated and accredited GPSS will be undertaken by the Ministry for Environment (MfE), or other Government appointed agency. This will comprise (but not limited to):

- any audit or verification functions the MfE and Agrecovery agree are necessary to ensure the scheme is meeting the regulations i.e., that all producers (or fee-payers) of the plastics are meeting their regulated cost recovery obligations
- all enforcement functions under the 'Act' i.e., where any producer (or fee payer) is not meeting their cost recovery fee obligations and to ensure there are no free riders

9. Scheme Performance

Act requirements for accreditation Part 2, Clause 14 (i)

'Provide for assessing the scheme's performance and for reporting on its performance to the Minister'

- Agrecovery will establish a comprehensive suite of performance measures for the GPSS, sufficient to provide the necessary reporting required by the MfE and for the Minister - including ministerial questions.
- Agrecovery will work closely with the MfE to manage ministerial reporting and will take a proactive approach in assessing and being prepared for ministerial questions and information requests about the scheme.
- Refer to 'requirements for accreditation Part 2, Clause 14 (c) for scheme performance measures

10. Publication of the scheme

Act requirements for accreditation Part 2, Clause 14 (j)

'Set out a strategy for publication of the scheme'

- Agrecovery will take an inclusive approach when communicating the GPSS to its participants and wider stakeholders.
- Agrecovery will develop material that will clearly explain the scheme to each class of person described in section 4 (clause 14 (b)) of 'the Act'.
- Agrecovery will put publications on its website and will utilise other communication channels to get messages out to stakeholders. For example, using Federated Farmers, Hort NZ and Dairy NZ communication channels, along with rural associations, such as the farm advisor network.
- Agrecovery will develop a comprehensive stakeholder database which will allow one to one access with farmers and growers to provide targeted communication. This database will be accessible in a secure manner by selected stakeholders and contractors to schedule on-farm collections, with consideration given to Privacy Act requirements.

11. Information to the Purchasers, Users and Handlers of the Product of the Scheme

Act requirements for accreditation Part 2, Clause 14 (k)

'Set out how information will be provided to purchasers, users and handlers of the product to which the scheme relates'

- Agrecovery are in the process of enhancing its information system and building capacity to meet the growth needed to fully support the GPSS and ongoing enhancements that will also support any new farm plastics product stewardship schemes.
- Significant marketing investment will be needed to fully engage stakeholders and importantly to increase farmer and grower participation in the scheme.
- Those to whom farmers supply product may also play a role by incentivising good recycling efforts and behaviours and, in this way, drawing attention to the scheme.
- Information will be provided securely and targeted to selected stakeholder groups as described in clause 14 (j) of the Act.

Promotion and Marketing Focus

Farmer and grower loyalty, goodwill and satisfaction will be critical for this scheme to succeed. Significant investment in increasing and sustaining farmer and grower participation will be required by the PSO. A promotion and marketing plan will be developed to increase participation in the GPSS.

Other legislation

The GPSS will be assessed to ensure compliance with other relevant legislation.

1. Health and Safety Act (H&S) will need to be assessed as it has implications for the collection and treatment of all FPP farm plastics. The existing agri-chemical scheme has robust health and safety practices in place that have been tested over the duration of the scheme.

   Consequently, there is a good understanding of agri-chemical containers and drums in terms of chemical residues from this farm plastics stream. The need for clear cleaning (triple rinse) requirements and the checking for contamination prior to any further processing such as, handling, shredding and baling the HPDE plastics are understood. Protective clothing is used where required.

2. While the agri-chemical scheme has good and tested H&S protocols in place these would have to be developed for the other three farm plastics streams. These plastics have other H&S requirements such as contamination within the bale wrap and silage sheet scheme and fertiliser residues in the small and large sacks schemes. Robust H&S protocols will be established prior to accreditation.

3. The Resource Management Act requirements are likely to impact on the GPSS when establishing collection and recovery hub sites. These will be addressed on a site-by-site basis in conjunction with the site owner.

4. Other legislation and statutory obligations the GPSS management will need to consider when implementing the GPSS are:

    a. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (note A)

    b. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

    c. Stockholm Convention on Persistent Organic Pollutants

    d. Commerce Act

    e. Fair Trading Act

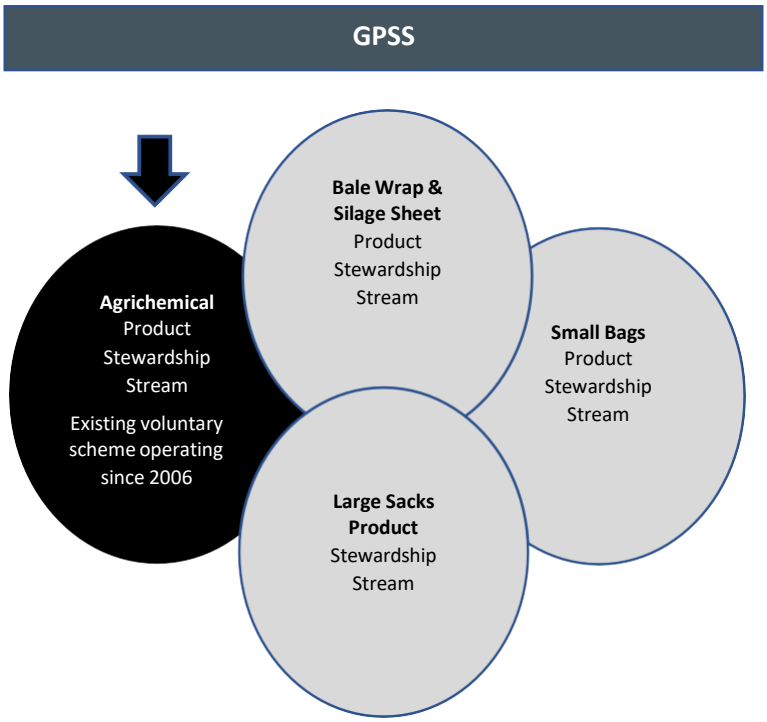
    f. Health and Safety at Work Act

    g. Privacy Act

25. AGRI-CHEMICALS AND CONTAINERS STREAM

Individual Agri-chemical stream design and implementation elements

The schematic below provides an overview of the GPSS. The agri-chemical stream is highlighted in black, and the diagram shows the inter-connected and coordinated nature of the four GPSS streams.



The existing agri-chemicals and containers voluntary and accredited product stewardship scheme has been operating successfully since 2006. The expectation, up until July 2021, was that the scheme would move to the MfE consultation phase and transition to a regulated and accredited scheme in 2023.

Advice from the MfE in July 2021 was that the transition to a regulated scheme should be delayed until 2024, to align with the timeframe for regulation of farm plastics, another priority product. MfE recommended that it would be helpful and pragmatic to merge the existing agri-chemical scheme into the farm plastics project design and implementation workstream.

As described earlier, the GPSS has been proposed to be progressed as four new regulated and accredited streams to come into effect in 2024. The four streams have been designed and implemented together to maximise operational coordination and cost sharing across the streams.

Transitioning the existing agri-chemical scheme into the GPSS Context

Agrecovery has been tasked by the MfE to co-design product stewardship schemes for farm plastics. This brief has required engagement with farmers and growers, primary industry stakeholders, and the two organisations that currently run accredited voluntary schemes for

farm plastics, being The Agrecovery Foundation and Plasback 2021 Ltd.

Agrecovery has carefully considered how to best transition the existing agri-chemical voluntary product stewardship scheme and its infrastructure into the GPSS. Consideration needs to be given to completing the transition while limiting any negative impact on existing scheme stakeholders and the existing operating requirements.

It is critical the scheme is merged seamlessly with the GPSS, and the transition is handled with care and progresses in a supportive and transparent manner. Recognition should be given to the investment and contribution the scheme has made to the safe disposal of agri-chemicals and their containers and drums and also to ensure the existing scheme stakeholders are brought along on the journey and any of their concerns are adequately dealt with.

Factors considered when transitioning the agri-chemical scheme

The existing Agrecovery agri-chemicals and containers accredited voluntary product stewardship scheme has:

- been accredited as a voluntary product stewardship scheme since 2006, accreditation that expires in 2024
- been operating successfully since 2006
- established over 118 collection sites nationwide, located primarily at agri-chemical container and drum distributor sites such as Farmlands, Farm Source and PGG Wrightson retail stores
- at each collection site there is an agri-chemical cage or container (bin) for farmers to drop-off their agri-chemical containers and drums – owned jointly or separately
- established a sustainable and collegial working relationship with the collection site owners and the voluntary funders of the scheme (fee-paying brands)
- two trucks are operated under contract by Agrecovery that are fitted-out with shredders and collect the plastics from the collection sites and undertake further processing for recycling, for export or disposal – one truck in the North and one in the South Island

- a flat per unit cost recovery fee has been applied and is recovered through quarterly sales declarations made by the fee-paying brand owners

The downside of the voluntary scheme is the free rider issue – those who benefit from the service but do not contribute to the cost of running the scheme – which is a primary reason for the need to transition to a regulated scheme.

The application for accreditation as a stand-alone regulated agri-chemical scheme in September 2020 included a new cost recovery fee matrix that better reflected the size and nature of the plastics collected. In addition, these fees had been set to cover the costs of continuing to operate the existing two truck collection and regional plastics treatment process.

Transitioning to the FPP operating model

Having the agri-chemical scheme merged with the GPSS as a separate farm plastic waste will result in greater operating coordination and cost sharing benefits. A multi-plastics collection approach should result in considerable reductions in agri-chemical scheme operational costs over the foreseeable future. These result from the establishment of multi-plastic collection sites, regional multi-plastics recovery hubs, system cost synergies along with outsourcing site collections and hub management. There are also synergies resulting from the registration and recording of dropped off product only having to be undertaken once for multiple GPSS plastics.

Transition Plan to 2026

After careful consideration by Agrecovery management and its Board, the following agri-chemical product stewardship scheme transition plan has been agreed. The existing agri-chemical scheme will be integrated into the GPSS over the first three years of the project.

That the existing stand-alone agri-chemical scheme delivery model continues in its current mode of operation until 2026:

- fees and costs to operate the scheme will continue as per the existing scheme to 2026
- from 2023 and 2026 the agri-chemical scheme will, in a considered and seamless way, be fully integrated into the farm plastics project
- agri-chemical collection sites will be used until they are no longer requested or needed, in consultation with the site owners – where farmers and growers have migrated to using the alternative multi-plastics collection sites
- existing Agrecovery shredder trucks will be reassessed and possibly repurposed from 2024 as the new farm plastics outsourcing delivery model is phased in
- the good relationships between Agrecovery and the existing agri-chemical stakeholders is maintained throughout the transition
- the farm plastics project cost recovery model and associated cost recovery fees take effect after 2026
- during the transition there will be some cost duplication and operating inefficiencies. However, it does ensure that collections and service levels shouldn't suffer during the transition
- a considered and transparent approach will be taken that allows existing stakeholders to raise their concerns, be listened to and have them resolved as the transition progresses – critically important for the on-going success of the agri-chemical scheme.

Expected outcomes from the transition plan

- Over time farmers, growers and farm contractors will see logistical and cost benefits from using the GPSS multi-plastics collection sites in preference to the single plastics agri-chemical distributor collection sites.
- The majority of the existing agri-chemical collection sites owners will see a decline in farmers and growers using their single scheme on-site collection bins. Some of this is likely to be offset with greater collection rates.
- Managing the expectations and interests of the collection site owners, many who have been loyal and long-standing supporters of Agrecovery needs to be incorporated into the thinking about the mixture and location of future collection sites. Where the agri-chemical collection bin site is shown to provide financial benefits to the site holder, Agrecovery will work with these sites as needed to explore options to ensure they are not materially financially disadvantaged.

- Agri-chemical scheme funders (fee paying brands) will see medium term cost and fee reductions from belonging to the lower cost GPSS.
- Agrecovery's relationships with its agri-chemical stakeholders will be maintained and possibly enhanced
- In working with other industry stakeholders, the existing brands will likely see the benefits of taking a coordinated approach and apply it more broadly.
- Cost recovered surpluses will likely occur initially as fees will continue to be based on higher agri-chemical scheme costs. A move to the lower GPSS fees at the end of the first three years is expected. Discussions with the fee-paying brands will likely be required on how to address any surpluses.

Farmer, grower, and farm contractor participation

Agrecovery has achieved a rapidly increasing return rate of agri-chemical containers and drums over recent years, and this is expected to continue over the foreseeable future. The uniqueness of the agri-chemical and container scheme, as opposed to the other GPSS streams, is the potential plastic contamination and the additional cleaning required. A continued focus in triple rinsing will be required under the GPSS to ensure farmers, growers and farm contractors meet the required cleanliness standards.

Stream costs, cost recovery fees and fee collection

As there is already an established group of fee-paying brand owners and a collection regime in place, there will be minimal impact on the plastic producers as they transition to the GPSS. Those currently not part of the agrichemical scheme will need to be identified and signed up to the GPSS.

Justification of GPSS costs allocated to the agri-chemical stream

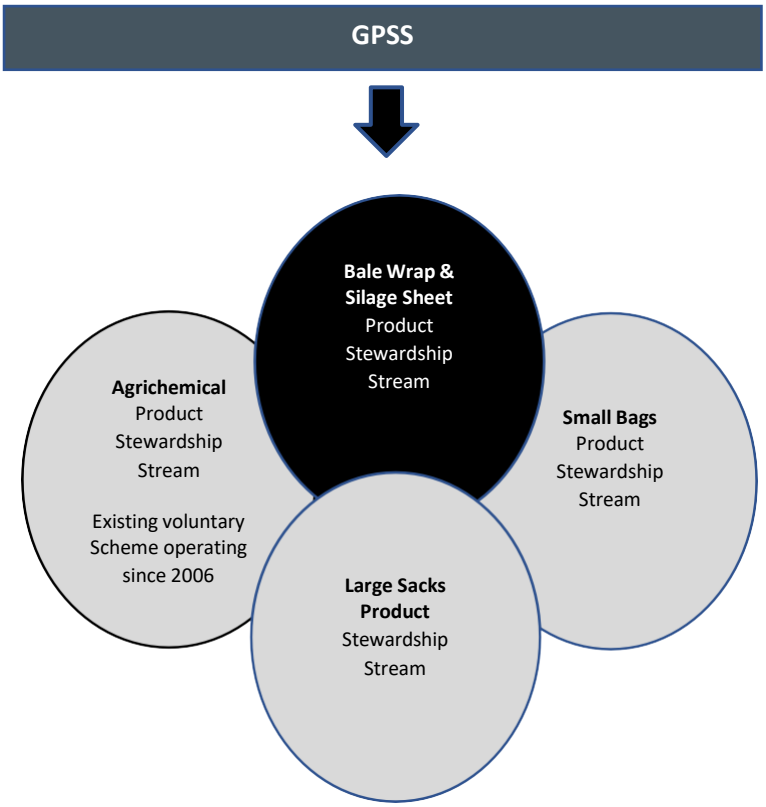
Using return rate tonnages as a GPSS cost allocation methodology, the agri-chemical stream picks up its percentage share of the overall GPSS, collection and treatment costs. This provides cost equity across the four streams once the effort and complexity of collecting and treating the plastics is accounted for.

HDPE has a high value as a recycled plastic but offset with current high transporting costs. As a consequence, we haven't attempted to assess the value of this potential revenue stream. The intention at this time is that if revenues do occur from the sale of the scheme plastics, they will be re-invested back into the scheme. If significant revenue streams arise over the initial years, discussions will be had with fee-payers on how these will be dealt with.

26. BALE WRAP AND SILAGE SHEET STREAM

Individual stream design and implementation elements

The schematic below provides an overview of the GPSS stream. The bale wrap and silage sheet stream are highlighted in black and shows the inter-connected and coordinated nature of the four stream GPSS.



A key feature of the Bale Wrap and Silage Sheet farm plastics stream is that it has been by far the highest volume (by weight) of plastic used on New Zealand farms for many years. Consequently, the cost and effort to collect and treat this film plastic is considerably more than the other three streams.

In the year ending June 30, 2019, it was estimated that approximately 10,000 tonnes of Linear Low-Density Polyethylene (LLDPE) film were used by farmers, growers, and farm contractors - *PwC report, 20 September 2020*. This was an increase of approximately 20% over the tonnage sold in 2017. These quantities exclude legacy plastics film stored on farms from previous years.

It is expected that a 4% year on year increase in tonnage is likely for the foreseeable future for bale wrap and silage sheet film unless there is a significant change in farming practices. Weather and pasture conditions can impact the amount of baling and silage activity undertaken each year e.g., drought and unseasonal rainfall, making it difficult to accurately access future growth rates.

The bale wrap and silage sheet stream has been designed to significantly reduce the practice of burying or burning this farm plastic film.

On farm Collections

The shared stream designs, as described variously in sections 3 to 19, are for farmers, growers, and farm contractors to drop-off their farm plastics at well communicated and sign-posted drop-off sites. These sites, where possible, should be within 25km of the farm gate. This is consistent with the successful agri-chemical scheme where increasing farmer participation has occurred over a number of years.

Given the bulky and potential significant weight of the bale wrap and silage sheet film, some farmers are unlikely to have farm vehicles with the capacity to take their large volumes of this plastic to a drop-off site.

In these situations, the GPSS has established an operating approach where, if individual farm plastics weights exceed a certain limit, a farm visit will be offered by the local collection contractor.

The stream cost recovery model includes estimated on-farm collection costs for each of the eight regions. The regional collection contractors will approach local farmers where they believe the weights are likely to meet the set limits or, alternatively, farmers will contact the local collections contractor or the GPSS manager's help desk where they believe their plastics

meet the weight criteria. There is expected to be some discretion around how hard and fast the weight limits are applied.

It is important to note the extensive feedback has highlighted that farmers, growers and farm contractors support the combined drop-off and on-farm collection approach.

Farmer, grower, and farm contractor participation

Bale wrap is primarily used on beef, sheep, and dairy farms, while silage sheet is mostly used on dairy farms. In total these farms are a significant subset of the primary sector.

Over the years farm contractors have grown to be a dominant player in this sector and now provide most pastoral and dairy farms with hay baling and silage pit services. Today, few farmers employ their own assets to do the hay baling and to establish silage pits and it is expected that they would have to contribute to the funding of the scheme.

There will be an obligation on the users of the end-of life film plastics to present the plastics in a condition that meets the standards for further treatments e.g., recycling and for export.

Producers of the bale wrap and silage sheet plastic

There is known to be a small number of bale wrap and silage sheet manufacturers who supply the plastic film to the New Zealand market for farm use. To our knowledge, there is currently only one local producer of film plastic in the domestic market.

Scheme costs, cost recovery fees and fee collection

Given most stream producers (or manufacturers) are located offshore, there would be considerable administrative hurdles to overcome to collect scheme fees directly. In such situations it is likely that fees will be recovered from importers, or the agents who act on behalf of the producers. If fees cannot be collected from these parties, then the contractors who typically import the film directly from overseas producers may be the most appropriate fee-paying option.

Justification of costs allocated to the bale wrap and silage sheet scheme

The four-farm plastic stream shared cost recovery model and cost allocation methodology

estimates that the bale wrap and silage sheet scheme will pick-up over 68% of all the collection and treatment costs – reflecting its proportion of the total weight of GPSS farm plastics returned in 2024.

Using the weight as the method to allocate of costs, is seen as a sound and defensible approximation of the effort and complexity to collect and treat the bale wrap and silage sheet plastics.

The reasons why the bale wrap and silage sheet scheme should pick-up the majority of the total FPP collection and treatment costs are that:

- this form of plastic is bulky, unwieldy, loose, weighty, and larger in terms of volume and size.
- compared to the other waste streams it is more difficult to man-handle and will typically need machinery to move and lift the product, especially where there are significant quantities.
- the majority of the on-farm collections will be for bale wrap and silage sheet. This is a significant cost directly applicable to this waste stream and, in fairness, should not be allocated to the other schemes

It could be argued that there will be some cross-subsidization from scheme to scheme and that this should be accounted for in the cost allocation. It is likely that there will be some cross-subsidisation, but this is not expected to be material in terms of cost. For instance, a truck who undertakes an on-farm pick-up of bale wrap may also pick up small amounts of other scheme plastics while at the farm – an efficient outcome.

The market price for farm plastic film can be volatile and, with shipping and transport charges currently high, estimating the net proceeds from its sale with any accuracy is difficult and hasn't been incorporated into the modelling. The intention is that if revenues do occur from the sale of the raw or recycled farm plastics, they will be re-invested into the scheme. If significant revenue streams arise over the initial years of the scheme, discussions will be had with producers on how these revenues should be dealt with.

Scheme Marketing and Promotion

The evidence and feedback received indicates that the majority of an estimated 10,000 tonnes plus of bale wrap and silage sheet film currently used on New Zealand farms annually is not currently being collected. The majority remains on New Zealand farms, or is disposed of in an unsustainable manner, which is the focus of this scheme. The aim is to increase farmer and grower participation in recycling farm plastic waste, by providing a free-for-users option that meets the MfE guidelines.

The GPSS manager will be engaging with all bale wrap and silage sheet users to ensure no farmer, grower or farm contractor is left behind and has the opportunity to access the GPSS.

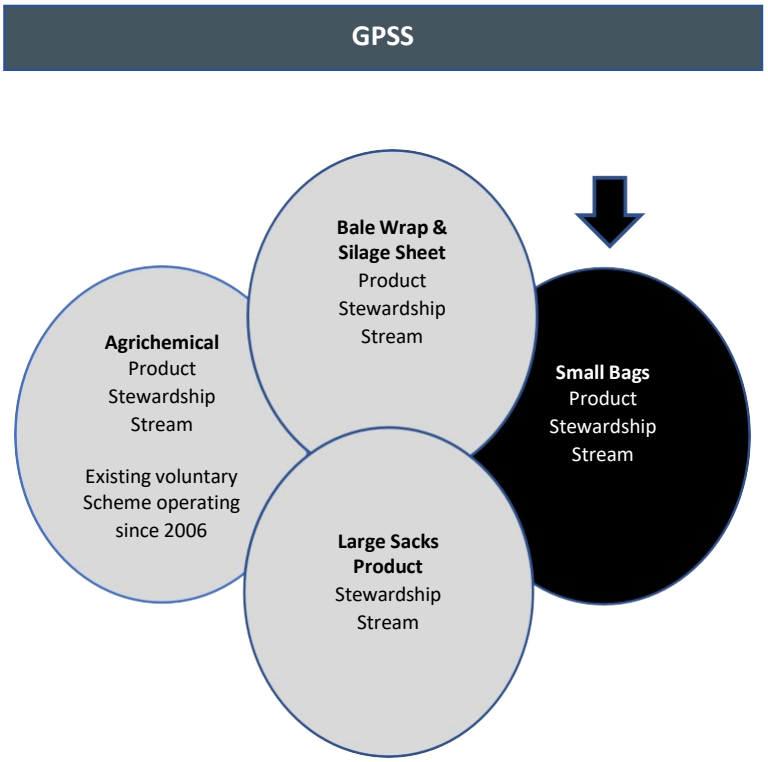
GPSS manager will utilise its bale wrap and silage sheet scheme reference group, the regional collection contractors, and hub management contractors to assist with promoting the scheme to increase farmer participation. It is critical that the scheme manager ensures that loyalty and goodwill is maintained and participation in the scheme increases.

A key focus and investment over the short term will be on building effective communication channels to engage regularly with all bale wrap and silage sheet stakeholders.

27. SMALL BAGS STREAM

Individual Stream Design and Implementation Elements

The schematic below provides an overview of the GPSS. The small sacks and bags stream is highlighted in black and shows the inter-connected operational nature of the four GPSS streams.



A key feature of the small sacks and bags farm plastics stream is the sheer number of farm plastic bags sold. This is projected to continue to increase over the next few years.

The small feed, seed and fertiliser bags have reduced in weight of product over recent times to comply with health and safety concerns over individual handling of plastic sacks and bags of more than 25kg. This has resulted in smaller bags at 25kg and smaller, as opposed to the previous 40kg bags, which has resulted in higher numbers of bags sold. The convenience factor of using these smaller bags has also increased their use.

In addition, these farm bags can be a mix of plastic types. The composition is typically polyethylene, woven polypropylene plastics, or a blend of LDPE. Where there is a mix of plastics, the bags cannot be easily, if at all, recycled. The consequences are that they will go to landfill. Agrecovery are working with producers pre the GPSS accreditation to ensure, where possible, that the small bags are made of recyclable or substitute packaging, and to also coordinate and limit the use of multiple plastic packaging to make it easier to manage at its end of life.

Therefore, the future cost and effort to collect and treat this plastic should be considerably less complex to collect and treat than bale wrap and silage sheet film and more similar to the agri-chemical and large sacks waste streams. Work is underway to look at ways to compress this and the other GPSS plastics at collection sites for ease of transport.

In the year ending June 30, 2019, it was estimated that 787 tonnes of small bags were sold - *PwC report, 20 September 2020*. By 2024 the projected tonnage will increase to 1000 tonnes. This excludes legacy bags stored on farms from previous years.

Feed and seed bags are expected to grow at around 5% to 6% for the next few years. However, there is likely to be no growth in the number of small fertiliser sacks for the foreseeable future given the move to large fertiliser sacks and the negative environmental impact of current fertiliser use.

It is planned that the small sacks and bags scheme lends itself to farmers, growers and farm contractors dropping this plastic off at collection sites. Feedback suggests this may be undertaken through a number of collection site visits.

Farmer, grower, and farm contractor participation

Small bags are used across the entire farming sector. A farmer wide GPSS promotion and marketing campaign and implementation plan will therefore be pivotal to increasing participation in this scheme

Scheme costs, cost recovery fees and fee collection

Given a good number of small bag producers (or manufacturers) are located offshore there may be considerable administrative hurdles to overcome to have them pay scheme fees directly. It is likely other options will need to be explored such as recovering the fees from importers, or agents of the producers or local distributors who act on behalf of the producers.

Justification of costs allocated to the bale wrap and silage sheet scheme

The four farm plastic streams cost recovery model estimates that the small bags stream will pick-up 9% of the total GPSS collection and treatment costs, being determined as a proportion of the projected total weight of the plastics collected.

At this time there is no known revenue stream identified from the recycling or export of small bags used in the farming industry. The intention is that if revenues do occur from the sale of these recycled farm plastics, they will be re-invested into the scheme. If significant revenue streams arise over the initial years of the scheme discussions will be had with producers on fee implications.

Agrecovery will be engaging with all small bag distributors to ensure no farmer, grower or farm contractor is left behind and has the opportunity to access and use the scheme.

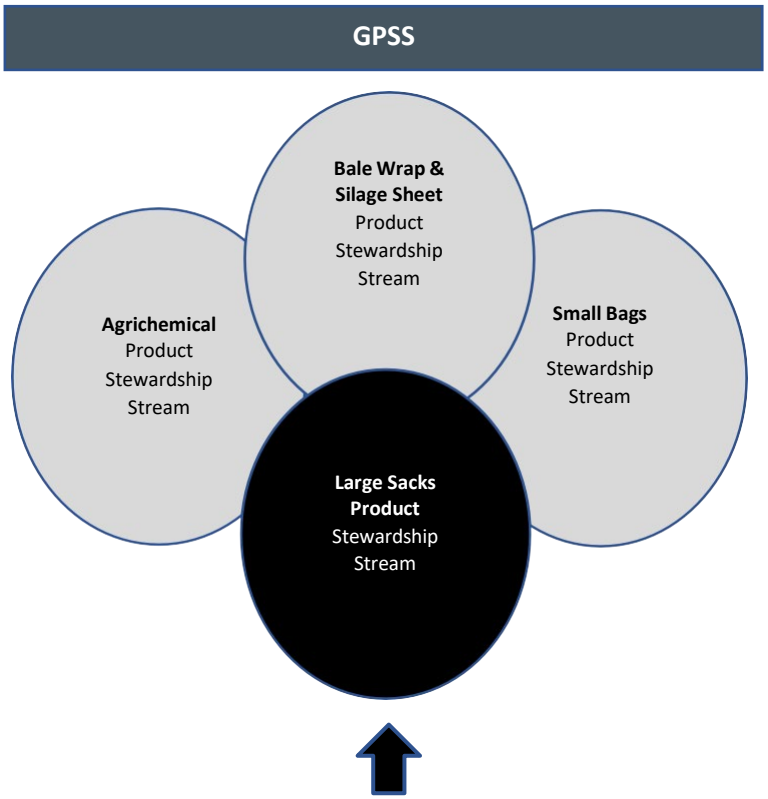
The GPSS manager will utilise the small bags scheme reference group, the regional collections contractors and hub management contractors to assist with promoting the scheme to increase farmer participation. It is critical that the GPSS manager ensures that loyalty and goodwill is maintained and participation in the stream increases.

A key focus and investment over the short term will be on building effective communication channels to engage regularly with all small bag stakeholders.

28. LARGE SACKS STREAM

Individual Stream Design and Implementation Elements

The schematic below provides an overview of the GPSS farm plastics stream. The large sacks stream is highlighted in black and shows the inter-connected and coordinated nature of the four GPSS streams.



Key feature of the large sacks farm plastics stream is that there are growing numbers of half and one tonne sacks being used in the primary sector. This is projected to continue to increase for the next few years.

The cost and effort to collect and treat this large sack plastic is considerably less complex to manage than bale wrap and silage sheet, being similar to the agri-chemical and small bag stream. Work is underway to look at ways to compress this and the other GPSS plastics at collection sites for ease of transport.

In the year ending June 30, 2019, it was estimated that 1,111 tonnes of large sacks will be sold - PwC report, 20 September 2020. By 2024, the projected tonnage will increase to 1,288 tonnes. This excludes legacy sacks stored on farms and sites from previous years.

Large grain and fertiliser sacks are expected to grow at around 3% per year for the next few years. However, given the negative environmental impact of current fertiliser use, the numbers sold may decrease in the longer term.

The large sacks lend themselves to farmers, growers and farm contractors dropping this plastic off at collection sites. Consideration will also be given to managing the collection and recycling of the large number of half and one tonne sacks used to import product used by the multiple sectors by engaging directly with importers and distributors of these products.

Farmer, grower, and farm contractor participation

Large sacks are used across the entire farming and horticulture sectors. The GPSS promotion and marketing campaign and implementation plan will be pivotal to increasing participation in this stream.

Stream costs, cost recovery fees and fee collection

Given most stream producers (or manufacturers of these bags) are located offshore and that these bags feature in multiple sectors, there may be considerable administrative hurdles to overcome having them pay stream fees directly. It is likely other options will need to be explored such as recovering the fees from importers, or agents or local distributors who act on behalf of the producers.

Justification of costs allocated to the large sacks scheme

The four-farm plastic stream cost recovery model, cost allocation methodology estimates that the large sacks will pick-up over 11% of the total collection and treatment recovery costs, being determined as a proportion of the projected total weight of the GPSS farm plastics collected.

Properly presented large PP sacks currently have a positive market value on the international recycling market. However, given the volatility in pricing for recycled plastic and the current high shipping costs that offset the price received for the plastic, we haven't sought to quantify a likely revenue value. The intention at this is that if revenues do occur from the sale of these recycled farm plastics, they will be re-invested into the scheme. If significant revenue streams arise over the initial years of the scheme discussions will be had with producers on fee implications.

GPSS manager will be engaging with large sacks users to ensure no farmer, grower or farm contractor is left behind and has the opportunity to access and use the GPSS.

GPSS manager will utilise the large sacks scheme reference group, the regional collections contractors and hub management contractors to assist with promoting the scheme to increase farmer participation. It is critical that the GPSS manager ensures that loyalty and goodwill is maintained and participation in the scheme increases. A key focus and investment over the short term will be on building effective communication channels to engage regularly with all large sack stakeholders.

Appendix A

Feedback on Scheme(s) Design and Implementation Options – Jan 2021 – Nov 2021

Individuals/groups that have been informally or formally contacted about the Farm Plastics Project.

Feedback from	Month/Year	Description of feedback or discussion	Reference documentation
Farm Plastics Product Stewardship Meeting (webinar)	10-11am, Monday 22 June 2020	Attendees provided with a 7 page "Terms of Reference" report titled "Priority Product Status for Farm Plastics" (refer appendices 1). Sally Blackwell & Liz Butcher, both from MfE provided an overview of priority products and the national plastics action plan. Chris Hartshorne, from Plasback, provided an update on their operation. Simon Andrew, Agrecovery's GM, outlined the "Farm Plastics Priority Product Status Project. A Q&A session followed.	**Webinar_Attendees_22nd _June_2020**
Farm Plastics Survey	Undertaken in June and July 2020	The industry was surveyed to ascertain how much plastic, and of what type, was being distributed to farmers and growers. The responses were provided in confidence to PwC, who aggregated the data before reporting back to the PSAG. PwC's "Material Flow Analysis – Draft for Discussion" August 2020 report (appendix 2)	

Farm Plastics Advisory Group Meeting (zoom) 40 attendees on the call	9.00-12.00am, Wednesday 19 August 2020	Simon Andrew, Agrecovery's GM, outlined the projects terms of reference and provided an update on progress. Dana Peterson, MfE, provided an update on the announcement of the 6 priority products, of which Farm Plastics was one. PwC presented the report to the PSAG. Steve Mead, Astron GM, provided a recycler's perspective on farm plastic recyclability. A 45-minute facilitated workshop was then undertaken with attendees.	**Attendees_Product_Status_Working_** **Group_Meeting_19th_August_2020**
Farm Plastics Advisory Group Meeting	Meeting scheduled for 2 November 2020	Meeting postponed after feedback from Plasback, with whom we are trying to co-design the draft scheme report. They prefer a design that doesn't fully meet the issued guidelines. Clarity sought from MfE on how to progress.	
Farmer Reference Group Meeting	12.00-3.00pm, Monday 2 November 2020	6 representatives from farmer and grower groups invited to attend. General discussion held on scheme options. Agenda and meeting notes provided (appendices 3)	**FPGPSS Meeting Notes 2nd November 2020**
Meeting with MfE Officials	11.15-12.45pm, Wednesday, 18 November 2020	Follow up email dated 17 December 2020 received from Dana Peterson, MfE, outlining next steps.	**MfE staff in attendance: Dana Peterson, Annabelle Ellis, Susan Bowler, Logan Anderson**

One-Stop Shop events held in Canterbury	November 2020	9 One-Stop Shop events run in Canterbury, trialling providing drop off centres for farm plastic waste. Interviews undertaken with farmers and growers attending these events to understand their preferences and to determine if drop off centres would work.	
Farmer and Grower Survey (sent out to the Federated Farmers and Horticulture NZ membership list)	January 2021	Survey created in conjunction with a consultant and profiled by Fed Farmers and Hort NZ before being sent to farmers and growers. Requesting feedback about preferences for any future farm plastics recycling scheme. 132 survey responses received.	
South Island Agricultural Field Day, Kirwee. Canterbury	24 & 25 March 2021	16 x One on One interviews undertaken with farmers and growers over two days	
Farm Plastics Advisory Group Meeting by Zoom	10.00-11.30am, 4 May 2021	Discussion on Agrecovery's Paper of 27 April titled "Agrecovery farm Plastics Project Scheme Options Report". 22 attendees, facilitated by Chris Keeling (Carina Ltd)	**PSAG** 4th **May 2021 Registrations**
Follow up meeting with Plasback	11.00-12.00, 14 May 2021	Facilitated by Chris Keeling (Carina Ltd). Discussion on Scheme Options Report and the Ministry guidelines for product stewardship schemes. Plasback promised to follow up with a transition plan for evaluation.	**Plasback Meeting 14th May 2021**

Bale wrap and Silage Film Reference Group Meeting by Zoom	10.00-11.00am, 14 June 2021	Meeting with most distributors of bale and silage wrap to progress the development of a product stewardship scheme for these products. 7 attendees at the meeting.	**Bale Wrap Reference Group Meeting 14 June 2021**
Wasteminz webinar to elected committee members	11-12.00, 25 August 2021	Presented an update on the Farm Plastics Project to the Product Stewardship Sector Group, followed by a Q&A session	
Wasteminz webinar to the Territorial Authorities Officers Forum	10-11.00, 15 September 2021	Presented a further update on the Farm Plastics Project. A robust Q&A session, followed up by one-on-one engagement with a number of TA's. This is on-going as we delve into the operational aspects of our model.	
Field trip undertaken to Fielding	4 November 2021	Visited the following farm retail stores in Fielding to understand the small seed, feed and fert bag market: Farm Source, PGG, Farmlands. Also visited the local recycling/refuse centre.	
Between the Domes Catchment Group	7-9pm, 11 November 2021	Presented an overview of the Farm Plastics Project, with a pitch to run a trial in Southland to test the design thinking.	

Farm Plastics Advisory Group Meeting by Zoom	10-11am, 15 November 2021	Summary of the Green-farms Report provided to attendees prior to the meeting. Update on the project provided and an outline of next steps.
Bale wrap and Silage Film Reference Group Meeting by Zoom	10-11am, 17 November 2021	Discussing the need to pilot a limited trial of the designed scheme to test the concepts and seek indications of funding support for a trial.
NZ Feed Manufacturers Association	17 March 2022	Presented to the NZ Feed Manufacturers Association and took questions from attendees.

Appendix B

Review of International Developments

A cursory review of what is occurring in other jurisdictions highlights that the way the recovery, handling, and treatment of plastic waste, including rural plastics, is funded, is changing worldwide. As New Zealand (NZ) wants to lead the way on environmental matters it is timely that these changes be considered in the NZ context.

Germany has been one of the most successful countries in managing rural plastic waste since the 1990's. It has taken a "polluter pays" principle where the manufacturer (or producer) pays for the cost of recovery. In other words, 'those who create the waste clean-up the mess'.

The US, up until 2019, had a 'consumer pays' policy, where waste management was largely funded by taxpayers. However, a change is being explored to a much more producer pays approach, in line with the Extended Producer Responsibility (EPR) concept.

The UK and some EU countries have schemes where the burning and burying of farm plastics has been banned through legislation. Consequently, farmers have no choice other than to pay for the removal of their plastics each year. UK farmers have to register with a recognised farm waste recovery entity and pay an annual registration fee ranging between approximately 100 to 300 pounds based on location. The UK is currently pursuing a 'polluter pays' policy where producers pay the full recycling costs under the Governments waste management schemes, including penalties for difficult to recycle plastics.

Since 2018 the EPR concept has increasingly been adopted globally as a founding principle for plastics (including farm plastics) and other waste recycling. EPR is seen as a necessary part of the solution to create a circular economy for plastics packaging and other plastics generally. Those that provide plastics to the market

should be responsible for the dedicated funding to collect, handle and treat the plastics after its use. Applying EPR will help eliminate the plastics we don't need and support innovation so that the packaging we do need is reusable, recyclable, or compostable.

The EPR is the only proven and likely pathway to ensure on-going and sufficient funding is provided through regulated fees or levies. Relying on public budgets and voluntary contributions is unlikely to be sufficient. EPR schemes are more than a funding mechanism and can bring many additional benefits such as enhancing efficiency and transparency of the system and incentivising packaging solutions. The costs are calculated on the net cost of the plastics after use waste management.

Appendix C

Stakeholder Feedback - Key themes

As stated earlier, Agrecovery has undertaken extensive engagement on the agri-chemical proposed priority product stewardship scheme and the three new preliminary scheme designs. Information has been collected and collated from a wide range of actual and potentially impacted stakeholders, and from an on-line farmer/grower preference survey, numerous advisory group meetings and assistance from consultants. This work has been progressed in line with the MFE general guidelines for product stewardship schemes milestones 1 and 2.

The feedback indicates stakeholders are looking for the following core scheme elements

1. A substantially free farm plastics collection service is preferred by most farmers and growers. Farmers and growers are increasingly committed to recycling and generally prepared to make an effort at their own expense to drop-off their farm plastics at a nearby drop-off site – within 25 km of the farm gate.
2. Farm plastics are of many and various types and is a wide catch-all - there is a desire to identify a limited number of the largest/most concerning plastic waste streams and develop schemes to manage these successfully, before broadening out to tackle other or all farm plastics.
3. A nationally consistent and flexible approach is supported as opposed to a more regionally developed collection approach.
4. Not-for-profit stewardship schemes and schemes managed by a not-for-profit entity are preferred – Agrecovery is mentioned often as an appropriate entity to manage farm plastics schemes.
5. The vast majority, if not all stakeholders, expect the producers of the plastics to bear the costs of recovering, handling, and treating their farm plastics.

6. A single communication, information, measurement, and monitoring system is preferred and is seen as critical – single stakeholder database, single website, and individual email addresses.
7. Dealing with multiple plastics waste streams at once is preferred which would keep costs to a minimum and is supported by farmers and growers.
8. Compliance, audit, verification, and enforcement should be managed independently by the MFE, or other government agency.
9. Farmer loyalty and goodwill is essential for the on-going success of any scheme and a focus on meeting farmer and grower expectations is critical.
10. Educating and training farmers and growers to 'do the right thing' and adequately prepare their farm plastic for collection will be important and require a dedicated focus.
11. Waste recovery schemes will require additional resources and a significantly increased management presence – Agrecovery's current capacity and capability will not be sufficient.

Appendix D

Survey – Farm Plastics Schemes Farmer Feedback, February 2021

The Ministry for the Environment wants to minimise rural waste to better manage environmental risks to New Zealand's natural resources e.g., land used for farming.

The aim of an expanded nationwide farm plastics collection and recycling scheme is to eliminate, as far as is possible, the practices of burning, burying, stockpiling, or sending plastics to landfill.

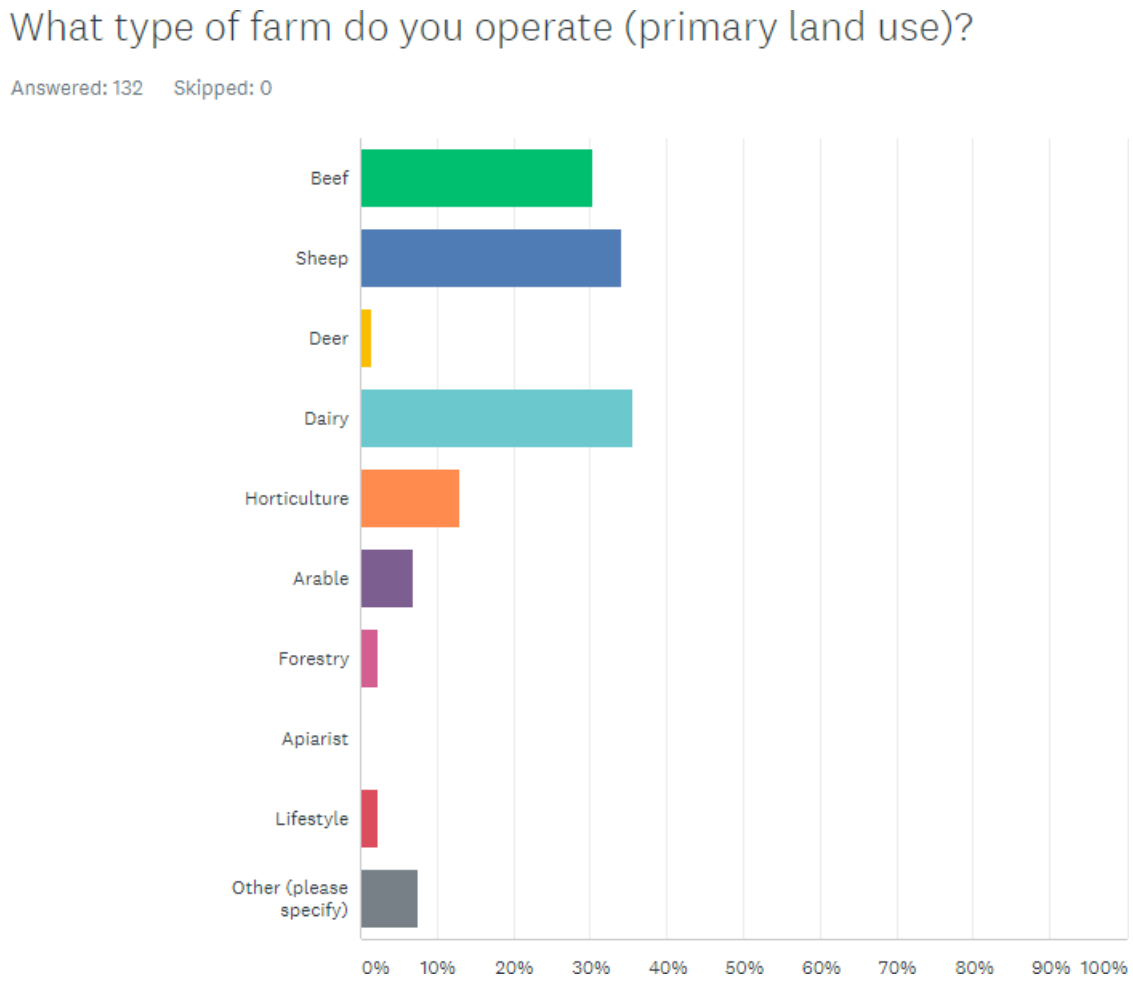
Plans are underway to increase the scope of the current services to include all farm plastics and increase farmer and grower participation in the schemes (including lifestyle farmers).

Before work begins on developing a workable scheme, Agrecovery is seeking farmer and grower perspectives on what a nationwide rural plastics recycling scheme should look like.

Survey results

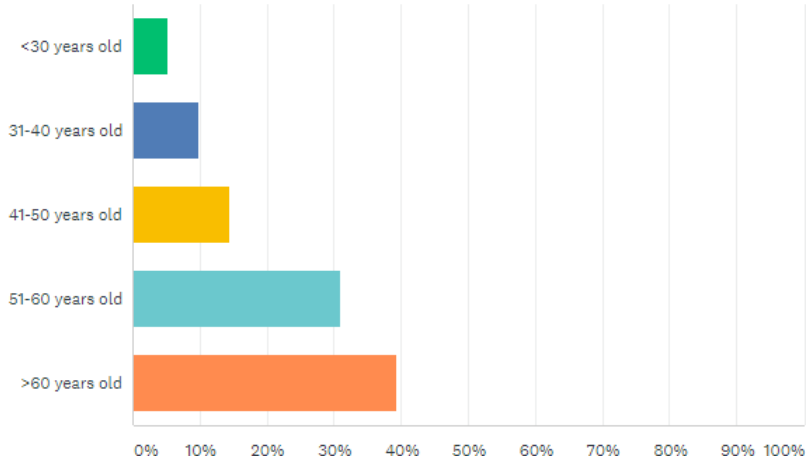
The survey was sent out by

We received a total of 132 responses with the average time to complete the survey being 9 minutes and 14 seconds. A large percentage (39.39%) of respondents were aged >60 years old.



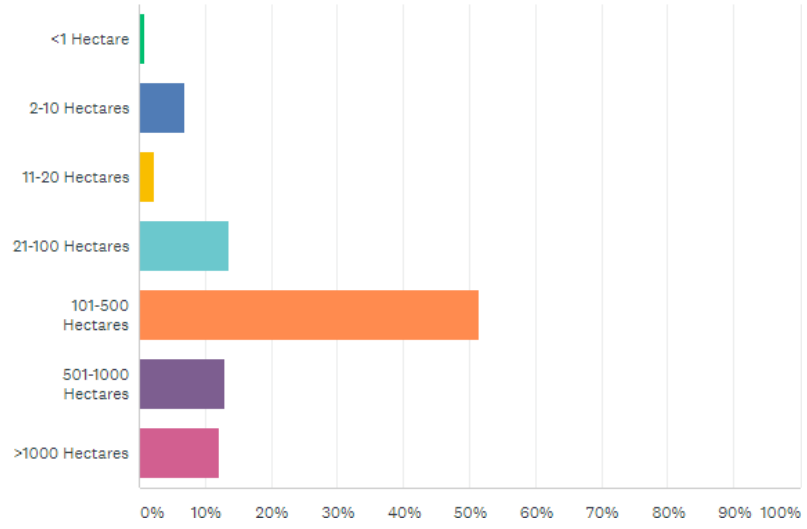
Select your age group

Answered: 132 Skipped: 0



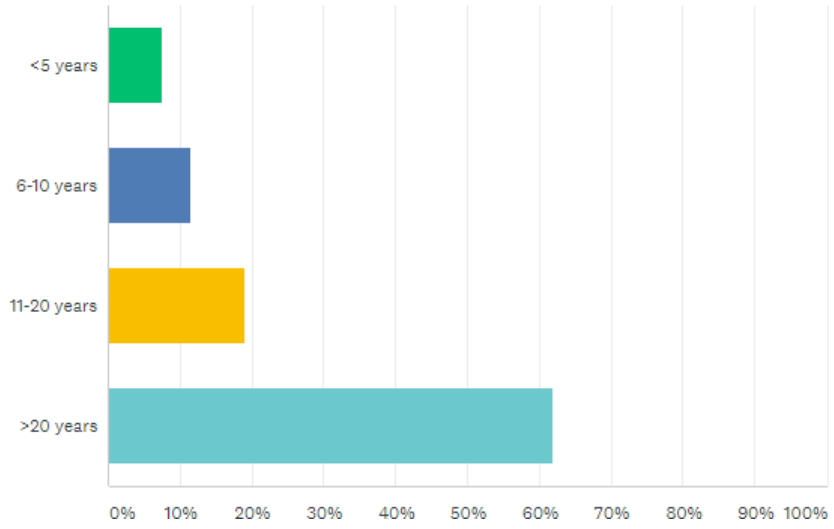
What is the size of your farm?

Answered: 132 Skipped: 0



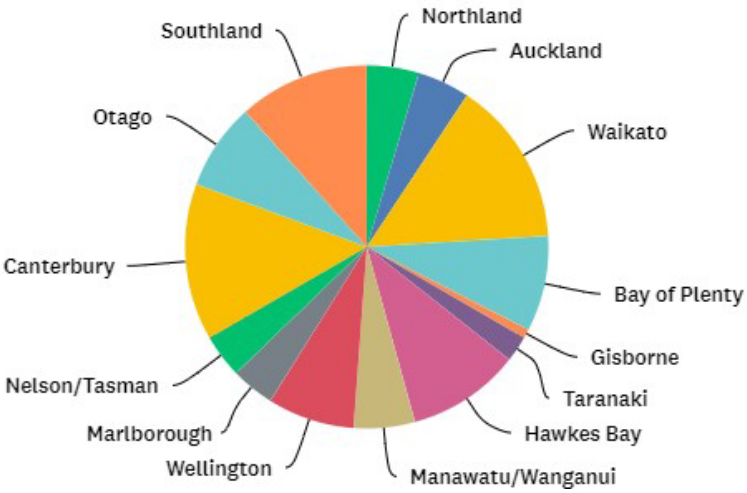
How long have you been farming on this property?

Answered: 131 Skipped: 1



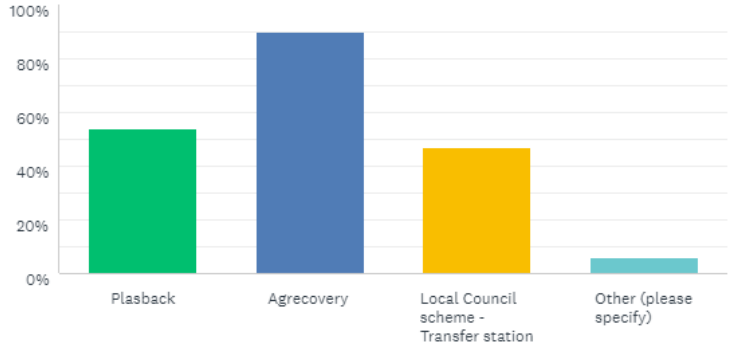
What region is your on farm in?

Answered: 129 Skipped: 3



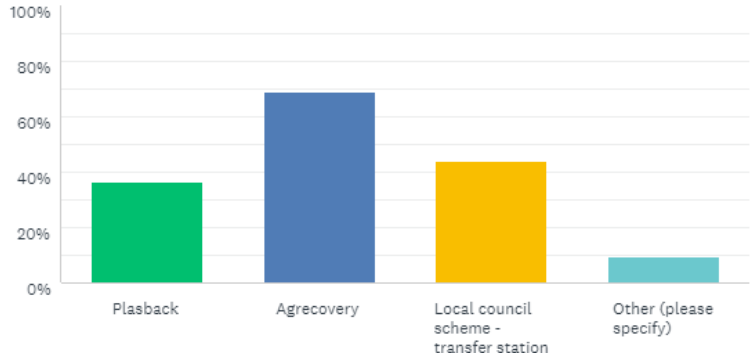
Are you aware of any of the following farm plastics recycling schemes? Select all that apply

Answered: 130 Skipped: 2



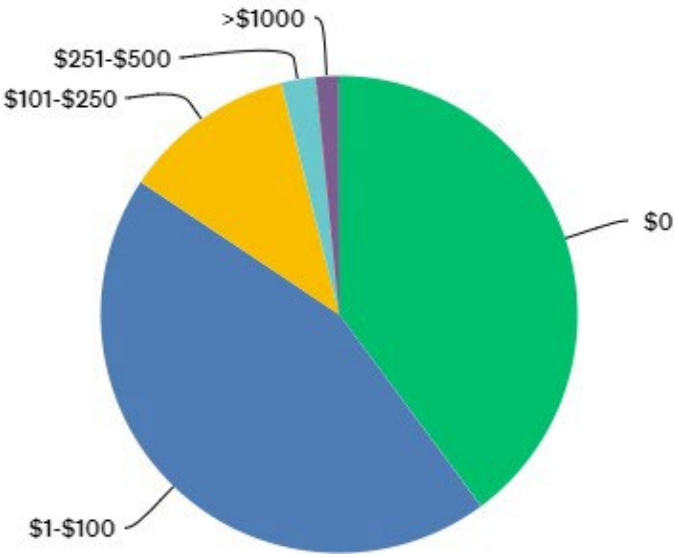
Do you use any of the following farm plastic recycling schemes? Select all that apply

Answered: 107 Skipped: 25



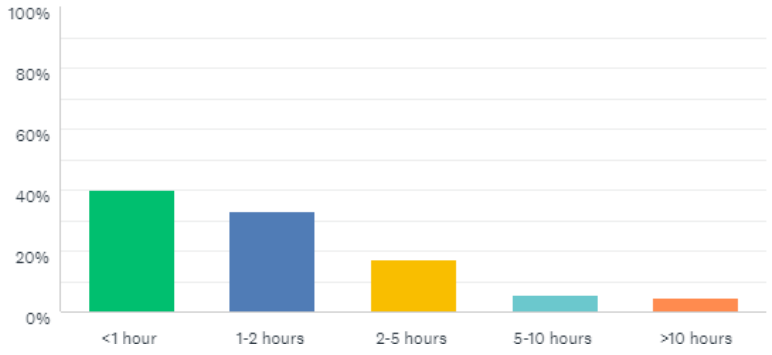
How much would you spend on recycling per month?

Answered: 128 Skipped: 4



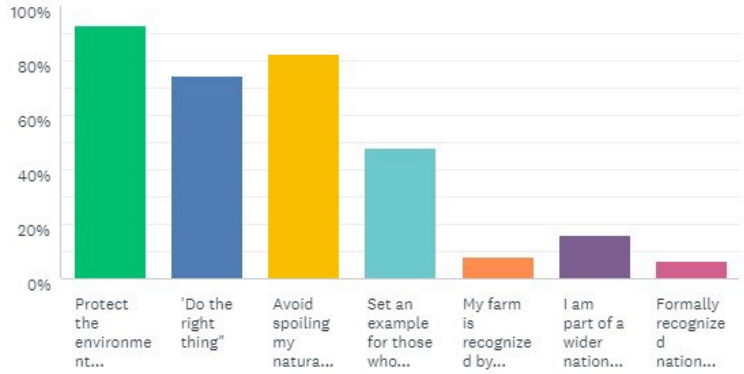
How many hours per month would you spend on farm plastic recycling?

Answered: 128 Skipped: 4



What motivates you to recycle your farm plastics - excluding farmhouse plastics? Select all that apply

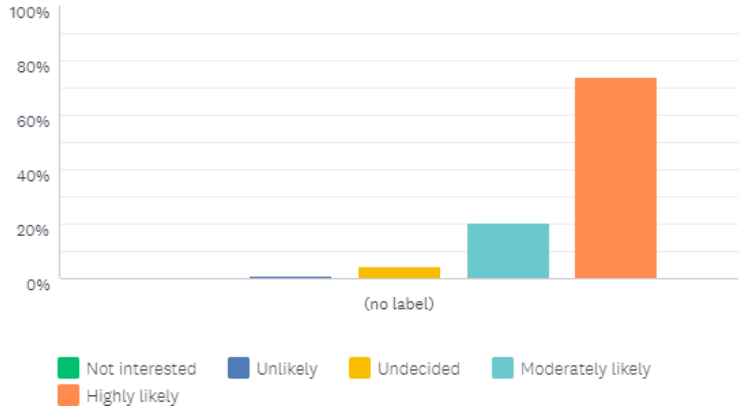
Answered: 125 Skipped: 7



ANSWER CHOICES	RESPONSES	
Protect the environment generally	92.80%	116
'Do the right thing"	74.40%	93
Avoid spoiling my natural landscape (my farm)	82.40%	103
Set an example for those who follow	48.00%	60
My farm is recognized by farms around me for my recycling effort	8.00%	10
I am part of a wider national scheme to drive for better environmental outcomes - i.e. follow the Government's lead	16.00%	20
Formally recognized nationally, regionally or locally for my plastics recycling efforts	6.40%	8
Total Respondents: 125		

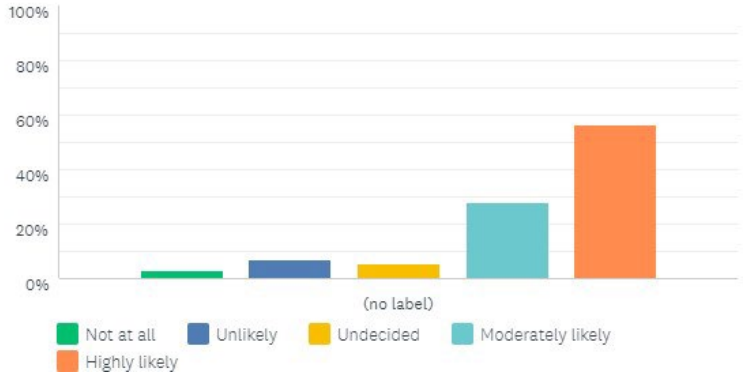
Would you be motivated to support an expanded national scheme to collect and recycle farm plastics?

Answered: 132 Skipped: 0



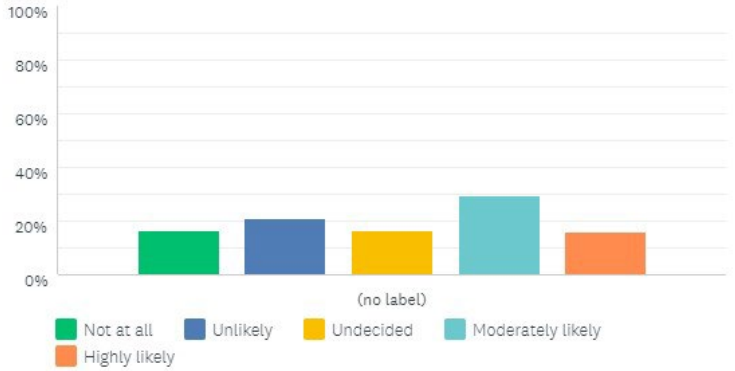
How likely is it that you would consider participating in an expanded national scheme where you would take your farm plastics to a nearby drop-off location - less than 25km from your farm gate? i.e. to the nearest small town or back to where you purchased the plastic

Answered: 131 Skipped: 1



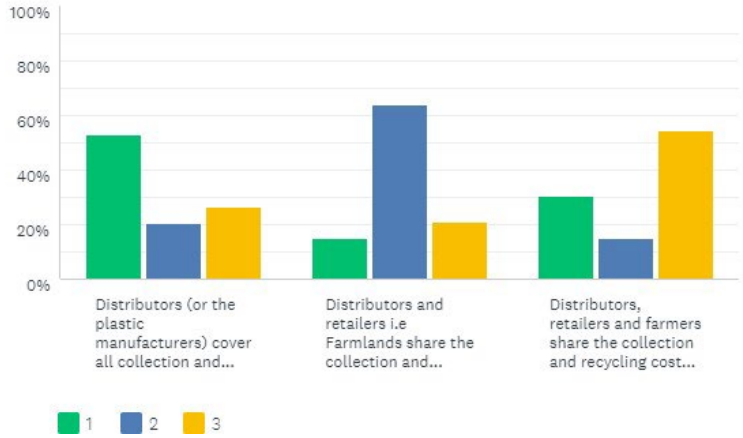
How likely is it that you would consider participating in an expanded national recycling scheme where you would take your farm plastics to a nearby plastics hub which could be 25 to 100 km from your farm gate?

Answered: 132 Skipped: 0



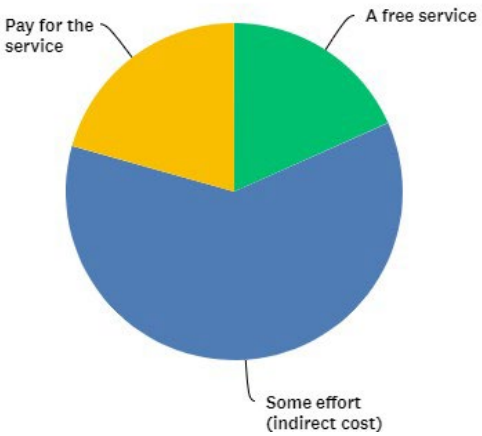
Who should pay for the collection and recycling of your farm plastics under an expanded national farm plastics recycling scheme? (rank the answers from 1 being the most important, 2 the second most important and so on)

Answered: 127 Skipped: 5



Would you be prepared to pay to have your on-farm plastics collected and recycled?

Answered: 131 Skipped: 1

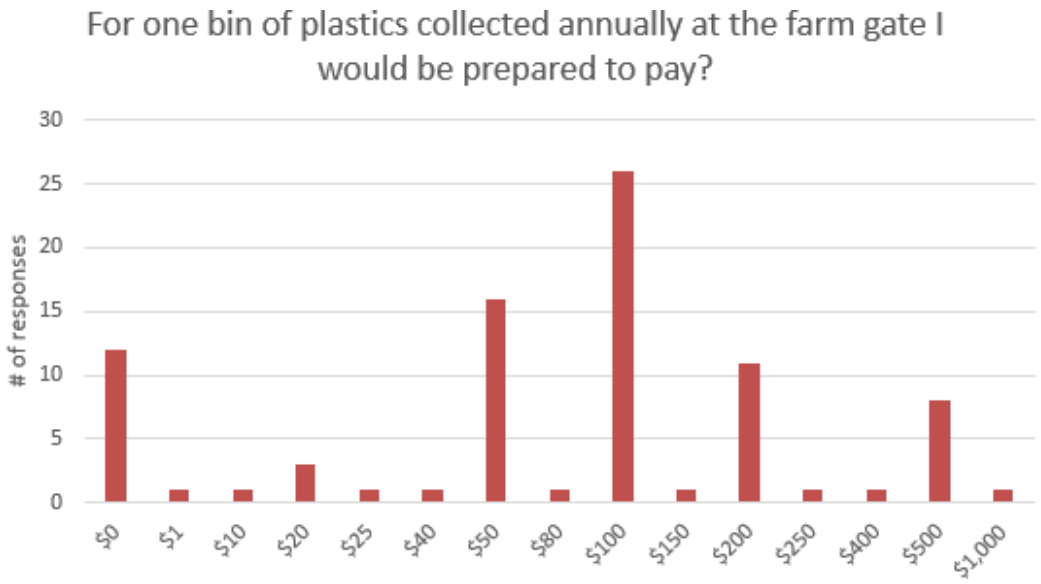


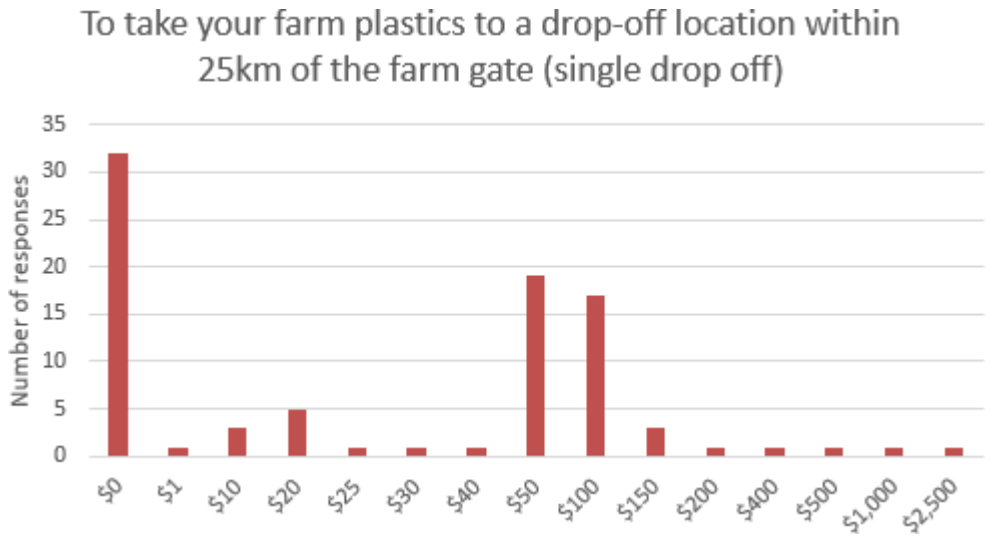
Who would you prefer to operate and manage an expanded national farm plastics recycling scheme? (rank the answers from 1 being the most important, 2 the second most important and so on)

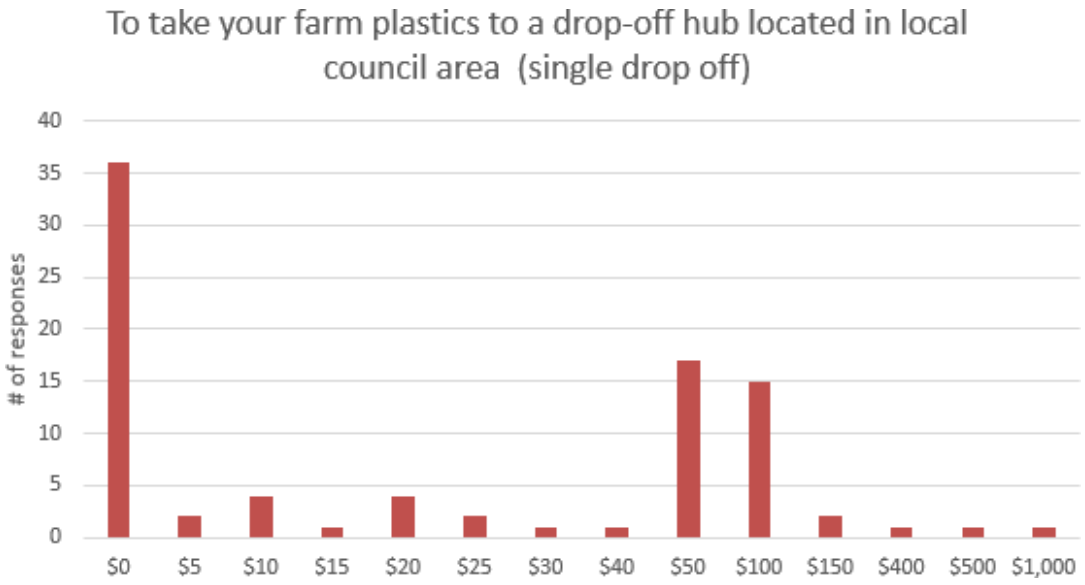
Answered: 124 Skipped: 8

	1	2	3	4	5	TOTAL	SCORE
Government Agency i.e. Ministry for the Environment	12.50% 13	13.46% 14	18.27% 19	40.38% 42	15.38% 16	104	2.67
Your local Council i.e. Territorial Local Authority	12.50% 14	34.82% 39	33.93% 38	16.96% 19	1.79% 2	112	3.39
Not for Profit entity i.e. The Agrecovery Foundation	65.00% 78	20.00% 24	11.67% 14	0.83% 1	2.50% 3	120	4.44
Commercial Services provider i.e. Plasback NZ	13.04% 15	34.78% 40	25.22% 29	24.35% 28	2.61% 3	115	3.31
Other - please describe below	1.61% 1	1.61% 1	11.29% 7	12.90% 8	72.58% 45	62	1.47

If you were prepared to pay, what do you consider to be a reasonable cost to the farmer?




To take your farm plastics to a drop-off location within 25km of the farm gate (single drop off)
Number of responses
35
30
25
20
15
10
5
0
$0
$1
$10
$20
$25
$30
$40
$50
$100
$150
$200
$400
$500
$1,000
$2,500


To take your farm plastics to a drop-off hub located in local council area (single drop off)
# of responses
40
35
30
25
20
15
10
5
0
$0
$5
$10
$15
$20
$25
$30
$40
$50
$100
$150
$400
$500
$1,000

1. Are there any other comments you wish to make about farm plastic recycling?
2. no
3. plastic oil drums, huge problem, but a private company in Canterbury takes they so why the hell doesn't Agrecovery
4. If it is made simple and easy to do people will use it. All farm containers should be able to be recycled not some turned down when you try to return for recycling.
5. Plasback take many weeks after phone call to collect but I still love this service
6. It should be no different from regular recycling, that is collected from the gate or taken to recycling station.
7. It is a big problem, especially silage wrap and plastic sheets.
8. Just do it.
9. As a body, we must find a solution to recycle vineyard nets. At the moment, it is horrible to see all this material going to land fill!
10. No
11. It's time the manufacturer is made to go to considerable effort to sell the product to us in a way that doesn't cause rubbish e.g., milk powder for stock feed in a larger reusable container, bulk feed into silos for young stock, salt lick sold by the trailer load made available for farmer pickup, returnable and refillable 20 and 200 litre containers. The best way to make this happen is to heavily discount the product when sold in such a way.
12. Should be such that no farmer will consider farm dumping a viable option
13. Needs to be a regular pick up otherwise the farm has a heap of plastic in the way and likely to be burnt
14. We are very happy to support and contribute to any efforts to provide sustainable farm plastic recycling services.
15. one bin is not enough annually. we currently live over 25km from the nearest recycling bins so already pay indirectly to recycle. The cost of recycling silage wrap at present is too high per bag, farmer is paying twice by having to pay for the bag to put the wrap in and then for collection, to get full buy in this cost needs to reduce, quite happy with cost currently (in direct) of recycling smaller containers, but it being free to drop off.
16. Happy to pay for a service to recycle containers not currently paid for by the manufacturer. Sometimes have no choice to use their product but end up throwing containers away.
17. NO

18. If there is any payment made, the scheme would have to be very transparent otherwise it is just another tax
19. To be honest, hassle is more of an issue than cost. If it's easy to organise and I can recycle silage wrap without washing it first, paying for the service is a small barrier. However, I think that the onus for most cost and effort should be on manufacturers - I understand that cost will flow on to farmers, but it's more likely to also result in innovation or commitment from manufacturers.
20. Too many farmers burying or burning plastic, especially bale wrap. Recycling needs to be incentivised if poor disposal practices are to be changed.
21. Cost is a major issue
22. How big is the bin you are talking about? The amount of plastic containers varies from year to year depending on what is happening.
23. Bale net wrap needs to be recycled.
24. I can deliver my plastics for Agrecovery to Farmlands, but this hasn't been for small items for some time
25. it is very difficult to keep clean over winter the use of a 3meter capacity skip bin would be most convenient. plastic bags that don't get picked up in a timely manner are a waste of time and energy to defy at a busy time of year. so, because the service has been so useless all ours just goes in a waste management skip bin. job done. pay a monthly fee. quick simple easy which is what is needed. which I would be prepared to pay $100 per empty about 3 or 4 per year would be what I need. once a year would be severely inadequate. I am prepared to take 20 litre drums to a close collection point as currently done. 200 litre ones need better promotion done on it.
26. I'd be more inclined to put up with a bit of hassle to do more recycling - it's more of a battle to pay.
27. don't make me collect and keep a whole lot of stuff and then not process it. Don't blame the producer if there are no feasible recycling options available
28. Could not there be a bulk service? or a ' bring you own container service, and you get only what you need? or some more friendly 'plastic', not derived from the oil industry? what about general waste collections, not only agri plastic- in rural areas?
29. no
30. I believe there should be more incentive for the manufactures to use more easily recyclable materials and develop fewer toxic means to dispose of non-recyclable materials then we currently use. Maybe Gasification?

31. Bird netting is a HUGE deal for the viticulture industry. Something must be done to address how to responsibly deal with old netting
32. Yes, bird netting recycling is very difficult and a huge waste on the landfill.
33. The vineyard netting is a massive problem nationwide, it's not been recycled now for a number of years and there's over 100,000 cubic metres stored across the wine grape regions of NZ Waiting for a solution.
34. The responsibility for recycling should be on the producer. I would expect the cost would be passed on to consumers.
35. it a very good service to be involved in
36. The manufacturer of the product should charge a cost for pick up - much in the same way South Australia has a 10c/bottle recycling charge added. This should cover the cost of pick up for most locations. Farmer pay this at point of sale. Farmers could also expect to contribute a small fee say $200 pa to cover incidentals. The costs should be up front and built into the purchase price, or farmers will not recycle
37. the producer of the plastic must take it back. not the farmer. The farmer already pays for the whole package e.g., chemicals, e.g., used chemical containers need to go back to the selling company or producer or both. Farmlands, PGG etc should have collection bins at their store to receive used plastic.
38. not at this time
39. save us from drowning in PLASTIC.
40. The easier it is for farmers the more likely it is to happen. Having a "skip" those farmers have on farm that is emptied every 6 or 12 months would result in far more agricultural recycling. This may have to have a fee however if companies providing materials are already trying to use recycled products this fee should be reduced where these products are used
41. make it easier. e g having a drop off hub always available.
42. companies need to provide products in recyclable containers. and learn to reuse their own products make their company cyclical. sell bigger containers of chemical/oil, less handling later on
43. the plastic syringes used on dairy farms needs to be processed somehow
44. I have always pressed my silage wrap in a wool press into an old fadge, but this is not acceptable by Agrecovery, so it is in my shed
45. Prefer recycle costs to be incorporated into cost of items sold i.e., user pays. Would use recycle system if product was collected from farm (say 4 times a year because of

quantity), would eliminate extra handling, would not need retail stores (or some such) to modify their premises to enable recycling to be stored etc.
46. Stopped filling in survey as thought it had missed point. 1 farmer always pays just how many times. 2 costs loaded up front all pay those who don't use their problem. 3 single day annual collection with 1 bin shows lack of thought put in by survey creator. Some farms would fill that in a week. 4 we need to do it.
47. There needs to be a nationwide commercially based capability to recycle all manner of the containers, tires, concrete, forestry by product, chemicals, not only the farm products.
48. $50 per Plasback bag is too dear. I think that agrochemical company's and silage wrap producers should be helping cover the cost of their products disposal. It shouldn't be all on the farmer
49. Should be compulsory collection and recycling with Incentives/penalties to recycle for manufacturers retailers and farmers. Should be nationwide to achieve scale. I suggest burning for power generation like Sweden with filters to remove toxins. Need incentives to transition to ban plastic and move to biodegradable like hemp packaging. Councils are terrible custodians of waste management in my experience. Matamata-Piako particularly bad. Need to remove barriers so farmers have practical system to collect and dispose. Ag recovery poor communicators with intermittent collections for an everyday problem. I've been driving my plastic to collection points for 25 years and am very disappointed and will be purchasing on farm incinerators as these are cleaner than no recycling by providers. Thank you for the survey. This needs urgent attention. We are far from clean and green in NZ and per capital are probably closer to 3rd world.
50. If there is a monetary incentive for farmers to use this e.g., rebate. It will encourage farmers to be bothered double handling and going to the effort. E.g., slink skin system. Farmers receive $1.00 for each dead lamb picked up from all over the farm and dropped at the gate. Quite an effort! Please remember it is free and very easy to burn and bury on farm. Everyone has a front-end loader!! Why not include household plastics? Otherwise, those plastics will be burned or buried I assume you would provide a large bin with a lid per farm. E.g., Skip bin
51. If recycling costs were incorporated into initial product cost, then 'cashback' at recycling point could be an incentive to recycle.
52. We would like to recycle but there are no recycling facilities near us.
53. The two organization that operate just need more encouragement to expand, do not need government or too much territorial authority to get bogged down with bureaucracy and up the rates or taxes because of cost over run
54. Our biggest recycling is silage bale wrap. We pay a local guy to dispose of our wrap which we have to bale up. This suits us down to the ground. Chemical containers go to Farmlands. Also, ideal solution. Prefer Agrecovery to continue doing the job, possibly with some support from Govt. but otherwise on a user pays basis.

55.	Dairy or beef farms that are smaller (not lifestyle) need to have a cost that incentivizes them to participate. If the cost is high, then there will be lower participation from farmers.
56.	We need to do less talking (although vigorous discussions are very important) as action needs to be undertaken now for the health of our country
57.	to encourage people to do it, if you got money back when you return the containers (built into the original cost)
58.	we need access to waste oil containers i.e., service stations, council recycle stations
59.	no
60.	no
61.	Agrecovery or Plasback needs to work alongside community groups for effective recycling on farm and collection
62.	Any Company of organisation with innovative and efficient progress in re-cycling technology
63.	A scheme for recycling dairy shed rubber-ware would be a great improvement
64.	Make it simple and a frequent service. Bale wrap would be the biggie - if this could be recycled that would be great.
65.	We desperately need a solution to the problem of used bale wrap
66.	no
67.	Would be very helpful to us and for the environment
68.	No
69.	Not sure how big the bin sizes are quoted above. I assume they are a good size. Difficult to clean silage wrap for recycling. Need to get all manufacturers who produce ag plastics on board. Need to encourage manufacturers to look for alternatives to the present reliance on plastic so the problem doesn't happen in the first place. On farm collection would quickly sort those owners who are not presenting product correctly and solve a lot of rejection problems.
70.	your survey is a bit vague about quantities i.e. bin size and number of bales being silage bales or bales of wrap.
71.	Would be great to have plastic recycling available more often.
72.	no
73.	no

74. Make it simple so more people will use it!
75. The easier it is (i.e., on farm pickup) the more people will participate
76. No
77. No
78. On farm collection of bulky such as silage wrap is best with small containers easier to take to a local depot for our size farm. Council recycling is mainly for household. Make sure recycle numbers on containers are at least 25 mm high so people can easily read them especially those who need glasses and may not have them on. Thanks Jim
79. Recycling at farm needs to be practical. For goodness' sake get some input from farmers. The easier it is to do, the better the uptake will be.
80. Just Get On and Do Something ASAP!
81. no
82. At present all farms in my vicinity bury or burn all their farm rubbish! Something needs to be done to make it easier to stop all these toxins entering the environment, education is important but also a cost-efficient system has to be implemented.
83. Would need more than once a year pick up
84. Please make something happen as we are becoming buried in plastic waste.
85. no.
86. Maybe the farm bins can be taken to a collection point by the farmer when full as an option. Either emptied on arrival or bin swapped for empty bin. We do this with our general farm waste, and it works well. This helps keep costs down.
87. no
88. Any collection that is available all year round in all areas would be helpful - the storing of all recyclable stuff is a problem.
89. no
90. Have been unable to recycle orchard irrigation pipes, as they have drippers in them. Need a service such as Plasback to be able to take horticulture pipes including fittings
91. you don't seem to be considering the option of collection when required.
92. If you ask the distributor or retailer to pay for this scheme, the cost is always passed onto the farmer. Pointless question
93. every effort should be made to reduce the production of single use plastics, whatever they might be used for

94. no thanks
95. fertiliser bags we would love to be able to recycle

Appendix E

Green-farms Product Stewardship Scheme Co-Design Report

FOR ACCEDITATION UNDER THE WASTE MINIMISATION ACT 2008

The Agrecovery Foundation

Addendum providing a response to the feedback on the Green-farms Product Stewardship Scheme final draft design report dated 24 December 2021

3 August 2022

PURPOSE OF THIS ADDENDUM

By late 2021 the Agrecovery Foundation had largely completed the 'Farm Plastics Project', funded by the Ministry for Environment (MfE). The Green-farms Product Stewardship Scheme (GPSS) design report was the output from this workstream. A final draft of the design report was submitted to the MfE on 24 December 2021.

To seek further feedback on the 24 December 2021 final draft of the scheme design it was made available to all members of the 'Farm Plastics Project' product stewardship advisory group (PSAG), and other relevant stakeholders for their feedback. The report was put on the Agrecovery website and communicated by email to these stakeholders with a deadline for feedback submissions of 28 February 2022.

All feedback submissions and other information received has been collected, collated and responded to by Agrecovery in this document and forwarded to the MfE on 25 March 2022. The addendum will be put on the Agrecovery website for those who have provided feedback to enable them to access the Agrecovery responses.

The feedback has not necessitated material changes to the final draft report, with responses provided in the addendum, being an appendix to the updated final GPSS co-design report of August 2022.

Where the submitter of the feedback has wanted an individual response, Agrecovery will be making direct contact to discuss their concerns as a follow up to the release of this final co-design report of August 2022.

SUBMISSIONS RECEIVED

Agrecovery received twenty-one submissions and the key themes have been responded to, along with a number of the more material individual concerns and queries.

Twenty of the twenty-one submissions were one or two pages in length, mostly highlighting one or two areas of concern with the GPSS or seeking clarity. A substantive 54-page response was received from Plasback 2021 NZ.

The names of the submitters will be referenced by their entity's name rather than the individual's name for confidentiality reasons.

KEY THEMES FROM THE 21 FEEDBACK SUBMISSIONS ARE:

- modelling used in the GPSS co-design paper
- who should be the product stewardship organisation (PSO) or GPSS scheme manager
- proposed GPSS operating costs
- scheme/stream producer fees and end-user perception of the fees
- proposed scheme asset costs
- limited appetite for change
- alternative delivery model
- benefits of the GPSS collection site hub recovery operating model
- farmer, grower and farm contractors returns and scheme participation
- farm plastics growth forecasts
- fee collections and audit requirements
- lack of domestic recycling processors and exporting off-shore
- GPSS consultation
- submissions in support of the GPSS

1. MODELLING USED IN THE GPSS DESIGN PAPER

There has been some concern from a number of the submissions around the data quality used in the GPSS cost recovery model and report.

Agrecovery response:

1. It is important to note that Agrecovery has used the best and most up to date evidence upon which to model the proposed GPSS costs and volumes.
2. The modelling is based on a Price Waterhouse Coopers (PwC) survey undertaken in 2020 that quantified the volumes of the three most common streams of farm plastics sold across New Zealand in 2017, 2018 and 2019. This base data, coupled with separate information obtained in drafting a scheme for agrichemicals and their containers, has been used to extrapolate the

volumes into the future and to allocate total costs equitably across the following farm plastic waste streams.

1. Agri-chemical containers and drums
2. Bale wrap and silage sheet
3. Small seed, feed and fertiliser sacks and bags
4. Large fertiliser sacks

3. Importantly, the base data and the forecasts have been tested for reasonableness through discussions and feedback with many and various stakeholders.
4. Note that the cost recovery model has been quality assured by PwC and found to be robust and fit for purpose.

2. PRODUCT STEWARDSHIP ORGANISATION OR GPSS SCHEME MANAGER

There is an assumption within some of the feedback that Agrecovery will be the scheme manager or PSO.

Agrecovery response

This is not the case as Agrecovery does not assume it will be the Green-farms Product Stewardship Scheme (GPSS) manager (or the Product Stewardship Organisation). However, the report does state that based on stakeholder survey feedback that many see Agrecovery as a natural-fit for the role given its experience as the existing agri-chemical containers and drums product stewardship scheme manager.

The draft Green-farms design report makes no presumption about who the scheme manager should be. However, in section 24 of the report, which responds to the requirements of clause 14 of the Waste Minimisation Act 2008, Agrecovery's name has been used as the identity to complete the "Act requirement" responses.

3. RESPONSE TO PLASBACK FEEDBACK

Plasback feedback covered a broad range of issues. Agrecovery agreed to engage directly with Plasback management to discuss and resolve the many issues raised in their feedback. As of 3 August 2022, after numerous discussions, both parties reached a joint understanding and

broad agreement on all the issues raised in their feedback. The key issues raised by Plasback and how they have been resolved are as follows:

Agrecovery response:

1. That the GPSS operating costs are high relative to their costs. Plasback have since agreed to work with Agrecovery on further determining the costs of collection and further treatment, to calculate the scheme fees for consideration by the sector at the end of 2022.
2. They already have a number of farm plastics treatment assets (9 balers etc.) which the GPSS is keen to incorporate into the scheme. Both parties have agreed that all Plasback and Agrecovery assets will be shared across the GPSS and arrangements will be entered into for their use, if required.
3. That their bale wrap and silage sheet recycling scheme should continue as is - the status quo but moving from a farmer pays model to being funded through producer fees, as per the proposed GPSS model. Agreement has been reached where Plasback will adopt the GPSS scheme multi-farm plastics operating model and that 'no farmer will be left behind'.
4. Plasback had initially proposed an alternative farm plastics delivery model which was to establish a Product Stewardship Organisation (PSO) that, in essence, sits above Agrecovery and Plasback. After further discussion Plasback has agreed that Agrecovery would be best placed to take the PSO role and for Plasback to be the primary contractor to the PSO to collect and treat all four farm plastics waste streams.
5. Suggested that the collection and hub recovery site model could prove ineffective and inefficient compared to an all on-farm collection approach and that the GPSS hub recovery sites are unnecessary. After further clarification of the GPSS approach it has been agreed that a mix of collection sites and on-farm farm plastics collection will provide the most cost-effective collection option and one that farmers and growers are prepared to support.
6. Plasback were initially doubtful that the GPSS manager can meet the modelled forecast return rates (or end-user participation) outlined in the design document. Agrecovery and Plasback have agreed that the pathway to lifting participation rates as set out in the draft co-design document can be achieved. After discussion it has been agreed that the return rates will pick-up more rapidly over the next few years. Particularly, over the first years of the GPSS with the support of a focused and targeted marketing campaign.

4. SCHEME PRODUCER FEES AND END-USER PERCEPTIONS OF THE FEES

A submission from a plastics producer argues that farmers should contribute to the costs of the scheme, not only the producer or manufacturer.

Two manufacturers of small seed bags have a concern about how the fees have been calculated, that farmers will ultimately pay, and the proposed fee is a high cost per small bag.

NZ Seed Processors (NZGSTA) suggest the proposed fees are high for small and large bags

Independent Wrap have concerns about the cost per tonne of bale wrap at $430NZ citing the cost is $200 to $400NZ per tonne in the UK and $300 per tonne in Europe.

Agrecovery response

1. Fees are calculated for each of the four GPSS farm plastic waste streams individually, with the stream cost divided by the forecast volumes for each farm plastic waste stream as at 2024, to obtain a per unit fee. The fee calculation is reliant on having the best forecast of individual stream costs and corresponding volumes. The PwC survey data, September 2020, has been the basis for the scheme cost and volume forecast calculations and is considered to be the best evidence currently available.
2. It is planned that the proposed fees remain the same for the first three years of the scheme and are then reviewed. While individual stream fees will be collected, they will be used to support the whole scheme for the first three years until it is bedded in.
3. The GPSS accounting system will record all stream costs and any revenues separately for each of the first three years. At the end of the first three year these records will be used to adjust the fees and to ensure they are equitable and there is no cross subsidisation between the streams.
4. Agrecovery agree the end-user or farmer will ultimately pay as producers (or brands) will likely pass the fees onto farmers through increased prices. It is unknown how much of the fee will be passed on and it will be a decision made individually by each effected business conscious of their Commerce Act responsibilities.
5. The GPSS has used international best practice to establish who should pay for the scheme. The 'Extended Producer Responsibility' (EPR) concept has been adopted by many countries

which states that ‘those who produce or manufacture the farm plastic should fund all of its end-of-life recycling efforts’.

6. Having producers pay the fees incentivises them to change their packaging to more sustainable or easily recycled plastics or to use another more sustainable packaging material. Alternatively, having farmers pay the fees does not directly push producers to change their packaging.
7. Feedback to date suggests producers may already be factoring the potential GPSS fees into their plastic prices in advance of the scheme commencement date, therefore smoothing the impact of any price rises.
8. Producer fees provide equitable outcomes as the fees are passed onto all farmers who use these plastics.
9. There is an opportunity to market to farmers that they have paid for recycling when they purchased the plastics (included in the price) and should therefore recycle their plastics.
10. Farmers will also recognise that by dropping-off their farm plastics at a near-by collection site they will be limiting scheme costs by undertaking some of the transporting costs themselves.
11. A fee of 20 cents per small feed or seed bag is stated by one submitter to be 20% (LDPE) to 30% (woven PP and BOPP) of the total cost of a bag – considered to be high. Agrecovery will review the small bag and sack fee and look more closely at the volumes used in the model to check if they reflect reality.
12. From a farmer’s and grower’s perspective this fee cost is absorbed into the total cost of the bagged product, which generally costs in excess of $20. From that perspective it may then be seen as an acceptable cost increase to recycle the packaging.
13. The proposed fee for bale wrap and silage sheet film is approximately $430NZ per tonne which may appear to be slightly higher than that found in the UK and Europe. As a comparative, the Irish Farm Film Producers Group scheme, which collects 90% of the bale wrap over a smaller geographical area, has operational and administrative costs of approximately EUR210 per tonne, or NZ$340.
14. Cost savings, from the standardising of packaging and improved labelling, etc, and greater volume of product levied than modelled, will see fees adjusted after the first three-year period to accurately reflect actual costs.
15. Agrecovery are happy to talk with individual submitters about the fee calculation methodology and the underlying assumptions for their farm plastic stream.

5. LIMITED APPETITE FOR CHANGE

Feedback from a large fertiliser cooperative propose that their individual bale wrap and silage sheet and a fertiliser sacks and bags collection and recycling scheme should continue as is.

The cooperative has a number of established single plastics collection sites and state they collect around 30% of the fertiliser sacks they sell annually.

Agrecovery response

1. It is clear the status quo has not and will not deliver the farm plastics project outcomes objective of having the vast majority of farm plastics recovered from farms and horticulture businesses. To have this efficiently, effectively, and sustainably recycled requires significant further investment and operational funding to create the circular economy within the next few years.
2. Having four separate waste streams being managed separately does not allow for the operational efficiency and coordination benefits that the multi-plastics GPSS design provides. A fragmented and disorganised operating model is likely to emerge. Single management and governance oversight is required for a successful integrated scheme.
3. Agrecovery undertook a stakeholder survey across 100 core stakeholders in July 2021 to assess perceptions of the proposed GPSS design, with a 40% response rate received (40 respondents). The results were overwhelmingly in favour of a multi-plastic approach and to deal with the most concerning farm plastics first.
4. An opportunity exists for Plasback to be part of and involved in the GPSS and discussions need to occur on how this could work. Ideally this needs to be worked through over the next few months – a joined-up approach.
5. The fertiliser cooperatives have achieved 30% return rates on fertliser sacks and bags without significant farmer promotion. Agrecovery suggest this return rate could be increased markedly with a multi plastic marketing focus.
6. Agrecovery's aspiration is that all farm plastic stakeholders who currently have a single plastics collection sites will be willing to take a New Zealand Inc approach. They will allow for some of their optimally located collection sites to be used as multi-plastics collection sites. This will be worked through over the 2022 and 2023 years in order to secure the 145 collection sites required nationally for the GPSS by early 2024.

7. Agrecovery has continued to explore alternative site options and notes that the most effective and efficient could be to use existing rural transport entities who have sufficient space at their depots. In many instances they offer a managed five or six day a week collection site as a part of their existing trucking operation. In addition, transport costs can be optimised as they know when the volumes are sufficient to be taken to local hub recovery site. In summary the most optimal solutions will be those that integrate well with existing local services and sites.

6. BENEFITS OF THE GPSS COLLECTION SITE AND HUB RECOVERY OPERATING MODEL

Independent Wrap suggest reducing the on-farm collection component of the GPSS to reduce stream costs and therefore reducing the fees for the bale wrap and silage sheet plastic stream.

Agrecovery response

The GPSS has been co-designed to be efficient, cost effective and, most importantly, sustainable. The delivery model has many advantages of other delivery options, in particular an all-farm pick-up approach. The benefits are as follows:

1. a more cost-effective operating model compared to all other scheme options explored and a significant cost benefit over an all-farm pick-up collection model
2. an efficient model using transparent and contestable contractual arrangements to collect and treat the plastics
3. a scalable and sustainable model where other farm plastics and rural waste can be easily added in the future
4. aims to use existing single plastic collection sites as multi plastics sites where acceptable to the existing site owners. i.e. Ballance and Ravensdown fertiliser cooperatives, Fonterra, and Agrecovery
5. provides for a number of on-farm collections, particularly for farms that have significant amounts of bale wrap and silage sheet film plastics where they do not have sufficient vehicle capacity to take it to a nearby collection site
6. on-farm collections do add significant cost to the scheme and the collections contractors will need to optimise on-farm visits to control the more significant transport costs

7. a focus by farmers and growers on levels of contamination and presentation requirements for the processing of farm plastics will be required and quality checks will be made at collection sites
8. a monitoring system will be in place that will provide farmers, growers, and farm contractors with feedback on what was collected and a measure of its cleanliness
9. a collection model that actively involves farmers in the scheme, being part of the process requiring them to drop-off their easily transportable farm plastics at near-by and well communicated collection sites
10. the evidence highlights that farmers, growers and farm contractors are willing to drop-off their plastics if the collection site is conveniently located and easily accessible
11. while Plasback see little need for hub recovery sites, it is evident they do have similar hub type arrangements throughout the country where the plastics are stored and processed further
12. having collection sites allows the contracted collectors to optimise their transport costs by operating at near full capacity with minimal empty running – and also provide an opportunity to optimise backfilling
13. the collection site facilitators will record the plastics received and that the standard of cleanliness is what is required
14. the site facilitator will also keep the collection sites tidy and secure
15. eight hub recovery sites will have the important role of providing the necessary sorting and treatments (baling, bundling, additional cleaning and so on) to ensure the plastics meet the requirements for further processing, ease of recycling and can receive a maximum return
16. Agrecovery believes the hub recovery process is an essential step and will become more important over time as recyclers become more demanding and selective about sourcing quality end-of-use farm plastics, as well as other plastics
17. The GPSS operating model has been designed to allow for expansion into other rural waste collections and treatments in the future

7. FARM PLASTICS GROWTH FORECASTS

A submission from a bale wrap supplier also feels there is little room for further bale warp and silage sheet growth because of a change in land use.

A Thriving Southland submission argues that there will be significant growth in baleage rates in coming years due to animal welfare pressures.

Smartpac, a local packaging company dealing in small and large sacks/bags, states that the bag volumes are significantly less than the real numbers.

NZ Seed Processor (NZGSTA) suggest seed volumes are lower than modelled in the GPSS.

Agrecovery response

1. As stated in the GPPS design document, Agrecovery has developed a comprehensive cost recovery model to calculate the proposed scheme costs and the regulated scheme fees. The model projects the growth of the four farm plastic waste streams to 2026. The model has also been quality assured by PwC and found to be fit for purpose.
2. Modelling is not an exact science and includes both factual data and, in some cases, assumptions about the future. Agrecovery has carefully taken into account many factors when modelling the farm plastics growth and return rates for the four GPSS farm plastic waste streams as follows:
    a. Forecast volumes have been based on, firstly, extrapolating the annual quantities of each of the three farm plastic waste streams for years 2017, 2018 & 2019 from the PwC volumes report, September 2020.
    b. Secondly, we have taken the extrapolated PwC volumes and applied a reasonable test based on other information received to settle on an annual growth rate. For example, the bale warp and silage sheet growth has been modelled at 4% per year through until 2026. Small feed bags @ 6% per year, small seed bags @ 5%, small fertiliser sacks @ 0% and large fertiliser sacks @ 3%.
    c. Agrecovery agree with Plasback's assessment that bale wrap and silage sheet volumes will likely reduce, but Agrecovery forecasts it will be a reduction in growth rate rather than an absolute reduction year on year.
    d. Discussions with key industry players and other stakeholders highlight a number of factors that will possibly reduce or increase the use of bale wrap and silage sheet film plastic over coming years, as follows:
        i. The consensus is that volumes will likely slow over coming years, through changing farming practices i.e. a reduced focus on dairy farming and a possible move back to more traditional winter-feeding methods and hay making.
        ii. Interestingly another GPSS report submission from Thriving Southland states that animal welfare pressures in the South Island are resulting in a reduction

in crop winter feed (beet/kale/swedes) and a move to an all- grass winter-feeding regime resulting in many more hay bales produced each year.

iii. Agrecovery believe they have modelled the bale wrap and silage sheet growth rates about right at this time, but concede that there will always be variability in the forecasts.

iv. Information provided by the General Manager of the Grain and Seed Trade Association (NZGSTA) in their submission show an increase in seed bag sales of around 4% per year 2018 to 2021. This aligns closely with the 5% annual growth rate used in the GPSS to 2024.

v. Over the first few years of the schemes, it will become clear what the actual volumes are. This data will then be used to refine the forecasts and re-set the resulting fees.

8. FEE COLLECTIONS AND AUDIT REQUIREMENTS

Smartpack's and Pope Textile Bag and Packaging's submissions are questioning the following:

- the GPSS intention for plastics producers to self-declare their farm plastics volumes sold – how will the GPSS avoid under reporting and how will it validate the numbers
- how will the GPSS deal with bags not used on farms
  - fee exemption for bags used for exporting
  - fee exemption for bags not used on farms
  - fee approach to imported pre-bagged product

Agrecovery response:

1. The GPSS has largely been based on the currently successful voluntary agrichemical operating model, which has used self-declaration of the units (containers and drums) sold to farmers, growers and farm contractors. The brands (or producers) provide this information to Agrecovery on a quarterly basis. This is a scheme that uses a high trust approach to fee collections and has worked well to date.
2. Under a regulated GPSS scheme all fee payers will be registered for one or more of the four farm plastic waste streams to ensure there are no free riders. There will be a GPSS compliance and enforcement function provided by the Ministry for Environment (MfE), or other

government agency, who will audit/verify that the regulated fee payers are providing the correct information on their plastics sold.

3. Farm plastics include many products not unique to the farming industry. Therefore, developing a scheme that collects fees just from the sub-group of the product that makes its way onto farms is a challenge. In time it is likely this plastic will be captured under a broadened regulated scheme for plastics, so the problem may only be a temporary one.
4. How these fees will be collected, and on what basis, forms part of the further consultation the MfE plans to have with the industry, prior to regulation becoming mandatory in 2024.
5. Options include using Customs to collect the fees on imported farm plastics, using tariff codes as the initial classification basis. Self-declaration will also need to be considered as an option, coupled with verification and enforcement to ensure compliance.
6. The GPSS will be working with all fee payers prior to scheme commencement in 2024 to ensure fees are only paid on plastics that are used on New Zealand farms and, additionally, that any fees are fairly and equitably applied.

9. LACK OF DOMESTIC RECYCLING PROCESSORS AND EXPORTING OFFSHORE

A number of submissions highlighted the lack of sufficient plastics recycling processing infrastructure in New Zealand.

Agrecovery response

1. While there are a number of organisations in New Zealand processing some farm plastic waste streams, there is not currently the capacity to process all of this waste onshore. Increasing local processing will be one of the challenges that flows from trying to create a circular economy but is beyond the scope of this report.
2. Farm plastic waste can be challenging, due to potential contamination and often strict criteria on presentation and therefore any investment in plant to process farm plastic waste will require careful consideration.
3. There has also been hesitancy on investing in local processing and tackling the problem because of continuity of supply issues, with collectors often chasing better prices being offered to export.

4. New Zealand's waste problem appears to be a lack of investment in recycling and processing infrastructure that can handle the waste being collected. These investment decisions need to be brought forward if we are serious about tackling this issue.
5. Exporting our farm plastic waste offshore, as we currently do with much of the collected plastic, is not a long-term viable option, even putting aside the additional non-sustainable impact of shipping the plastics to Asia.
6. The Basel Agreement, to which New Zealand is a signatory, is specific about the type of plastic that can be exported and the allowable levels of contamination
7. Agrecovery's view is that New Zealand has taken a very broad interpretation of this agreement and that, over time, a narrower interpretation may limit the amount of farm plastics that can be legally exported. If we look to Australia for guidance only plastics with very low levels of contamination will be able to be exported beyond 2023.
8. In addition, the exporting of the farm plastic waste gives rise to concerns that appropriate labour and health and safety policies operate at these overseas plants, that the plastic is not being processed inappropriately, and that a proper circular economy is being created. Shipping costs and the willingness of shipping companies to handle such cargo are also likely to add to the problem.

10. GPSS CONSULTATION

Two submissions received from the seed industry were concerned about the lack of consultation about the GPSS scheme design

Agrecovery response:

1. MfE undertook initial public consultation back in 2019, which resulted in six products, including farm plastics, being declared priority products under the Waste Minimization Act in July 2020. This was well messaged to the industries involved and, for close on two years, considerable effort has been made to ensure stakeholders have been provided the opportunity to provide input into the scheme design.
2. Industry associations, representing different stakeholder groups, have also been engaged, as have bodies that represent farmers and growers, such as Horticulture New Zealand and Federated Farmers.
3. MfE established clear guidelines on the amount of engagement expected, with the number of Product Stewardship Advisory Group meetings required to be held, and evidence has been

supplied to them on the amount of engagement undertaken with stakeholders and farmers and growers.

4. Given the size of the farming sector and number of stakeholders Agrecovery acknowledge some may not have been fully engaged with during the scheme design process. Given this project has now been operating for close on two years, Agrecovery feel there has been adequate time given for those who wished to provide input and feedback. In addition, feedback will be provided to the Ministry for the Environment as it undertakes further consultation on the regulation and fees.

11. SUBMISSIONS IN FULL SUPPORT OF THE GPSS

1. The Federated Farmers' Commercial Manager was supportive of the scheme design and that the GPSS has addressed inequities by establishing a nation-wide integrated scheme
2. Future Post's Managing Director - a plastics recycler, would like "to add our support to the potential product stewardship scheme" "we feel this type of beneficial reuse of rural plastic waste can significantly reduce the carbon footprint" "in our experience our NZ farmers are much more willing to actively participate in these schemes when there is a known local outcome for the waste."
3. Waipa District Council feedback was supportive of the scheme but wanted to be assured the GPSS was not considering a waste to energy option and that it should be signalled in the report that this was not going to be part of the process.
4. Fonterra are in support of the GPSS and are supporting any work that can ensure small woven PP bags can be easily recycled, as these feed bags represent 41% of their own brand waste streams.

Appendix F

Farm Plastics Project Scheme Options

April 14, 2021

Introduction

The Ministry for the Environment (MFE) has funded the Agrecovery Foundation (Agrecovery) to propose a workable regulatory framework for the recovery (collection and recycling) of all on-farm plastics i.e., plastics used for farming purposes (excluding household farm plastics). The desired result is to have a comprehensive regulated product stewardship scheme in place that manages all farm plastic waste responsibly.

In August 2020, the Ministry for the Environment gazetted a 'Declaration of Priority Products Notice' under the Waste Minimisation Act which describes products that will require a product stewardship scheme to be in place. Regulations will subsequently be enacted "prohibiting the sale of a priority product, except in accordance with an accredited scheme". In short, the described products will not be able to be sold lawfully unless the sellers are 'members in good standing' of the accredited product stewardship scheme for their products and are operating in accordance with the rules of the scheme. This declaration included 'farm plastics', described as:

- plastic wrapping materials for silage or hay including, but not limited to, bale wrap, hay bale netting, baling twine and covers for silage pits.
- plastic sacks for packaging agricultural and horticultural commodities including, but not limited to, fertiliser sacks, feed sacks and bulk tonne bags of polyethylene or woven polypropylene; or
- other plastic packaging and products used for agriculture and horticulture including, but not limited to, protective nets, reflective ground covers, and other plastic containers.

In July 2020 the Ministry gazetted a finalised 'General Guidelines for Product Stewardship Schemes for Priority Products Notice' which laid out its expectations and requirements for product stewardship schemes. These guidelines are as follows:

Expected Product Stewardship Scheme Effects

- Circular resource use

- Continuous improvement in minimising waste and harm and maximising benefit from the priority product at end-of-life.
- Increasing end-of-life management of the priority product higher up the waste hierarchy to support transition to a circular economy in New Zealand.
- Investment in initiatives to improve circular resource use, reusability, recyclability, and new markets for the priority product.

- Internalised end-of-life costs
  - Full net costs for stewardship of priority products at end of life met by product or producer fees proportional to the producer's market share and ease of reuse or recyclability of their product.
  - Free and convenient collection of the priority product for household and business consumers at end-of-life, including rural populations.
  - Collection and management of legacy and orphaned priority products fully or substantially funded by the scheme.

- Public accountability
  - Clear information to household and business consumers on how the scheme works, how it is funded, and how to find the nearest collection point.
  - Transparent chain of custody for collected and processed materials, to both onshore and to offshore processors, and published mass balances showing rates of reuse/ recycling or environmentally sound disposal of the priority products.
  - Publicly available annual reports that include measurement of outcomes and achievement of targets, fees collected and disbursed, and net cash reserves held as contingency.

- Collaboration
  - Optimal use of existing and new collection and processing infrastructure and networks, and co-design and integration between product groups.

Expected Product Stewardship Scheme Contents

- Governance
  - The scheme will be managed by a legally registered not-for-profit entity.

- Annual independent audits will be conducted on scheme performance and included in scheme's annual reports to the Ministry for the Environment. The annual reports must contain the following:
    - financial performance and scheme cost-effectiveness.
    - environmental performance; and
    - agreements with scheme service providers.
- Governance arrangements will be established for the initial set up and ongoing development and operation of the scheme that are appropriate to the size and scale of the scheme.
- All governance activities will adhere to the Commerce Commission guidelines on collaborative activities between competitors, including but not limited to considering the option of applying for collaborative activity clearance from the Commission for the scheme.
- The scheme will be the only accredited scheme for that product, or
    - have agreements in place with other scheme managers to enable cooperation and cost-effective materials handling and to prevent confusion for household and business consumers; and
    - demonstrate how net community and environmental benefit (including cost-effectiveness and non-monetary impacts) will result from multiple schemes for that priority product.
- Directors or governance boards will:
    - be appointed through an open and transparent process.
    - represent the interests of producers and consumers of the priority product and the wider community as informed by stakeholder advisory groups; and
    - follow governance best practice guidelines, for example the Institute of Directors of New Zealand Code of Practice for Directors, including for the identification and management of conflicts of interest.

• Scheme operations

- Services (e.g., collection, sorting, material recovery and disposal) will be procured using transparent, non-discriminatory, and competitive processes open to all competent entities whether existing, new entrant or social enterprise.

- Clear, regular, and open reporting and communication will be given to scheme participants and stakeholders.
- Processes exist to manage commercially confidential or sensitive information appropriately.
- All people involved in the scheme will have completed suitable training to complete their roles, including in best practice in prevention and reduction of harm to people and the environment.
- Ability to obtain new or existing permits held, for all necessary activities in New Zealand in relation to processing and potential export of priority products or their constituent components.

• Targets

- All schemes will set and report annually to the Ministry for the Environment on targets that include as a minimum:
    - significant, timely and continuous improvement in scheme performance.
    - performance against best practice collection and recycling or treatment rates for the same product type in high-performing jurisdictions.
    - a clear time-bound and measurable path to attain best practice.
    - implementation phase-in to reflect availability of markets and infrastructure.
    - new product and market development to accommodate collected materials; and
    - measures for public awareness of scheme participant satisfaction and a record of response by the scheme to concerns raised.
- Targets will be reviewed and adjusted no less than every three years from the date of accreditation, taking into account changes in the market, natural events, and technology.

The gazetted guidelines also provide timelines in which accreditation or reaccreditation must be secured for priority products, as follows:

- Within one year from the date of priority product declaration for product categories with existing accredited voluntary schemes that wholly or substantially cover that priority product.
- Within one year from the date of priority product declaration or co-design recommendations to the Government, whichever is later, for product categories not substantially covered by voluntary accredited schemes for which a co-design process has commenced; or
- Within three years from the date of priority product declaration for all other priority product categories.

The timeframe expectation for farm plastics is likely to be the first item noted above.

As Agrecovery's work on guiding the development of a product stewardship scheme for farm plastics has progressed, a number of key activities have been undertaken:

1. Stakeholder engagement through the Farm Plastics Stakeholder Advisory Group.
2. Stakeholder engagement through the Farmer Reference Group.
3. An analysis, undertaken by PwC of the material flows for farm plastics.
4. A user survey, focused on farmer and grower preference.
5. A stakeholder survey to test our preliminary design thinking

The summary findings from these five engagements are further outlined below. Based on this information, Agrecovery has also prepared an Options Shortlist for scheme co-design which synthesis the information gathered to date, with reference to the government-gazetted design guidelines.

Farm Plastics Stakeholder Advisory Group Summary

The Farm Plastics Advisory Group met on 19 August 2020. Key conclusions from this meeting included:

- Plasback, as an existing scheme operator, will be a key contributor to the process.
- The group represents the interest for the wider stakeholders. The Agrecovery Board is providing the overall governance for the project.
- Domestic processors are handling at least 15,000 tonnes a year of plastic waste: 8,000 tonnes are sold into the domestic market and 7,000 tonnes is exported to overseas market due to insufficient demand locally. There is an annual surplus of recycled material in New Zealand.
- Bale wrap is recycled into Tuffboard. The product has a variety of uses and is very versatile and used as a Plyboard replacement.

- Seed/Feed/Fertiliser bags are challenging to shred, requires specialist equipment and generates a low yield.
- Funding is required to make local investment in infrastructure commercially viable.

Following this meeting, Agrecovery engaged more directly with Plasback to explore their model with consideration to the government-issued design guidelines, particularly:

- The guidelines require the scheme to be run by a not-for-profit, whereas Plasback is a commercial entity.
- The guidelines require that services be fully funded by a product or producer levy, whereas Plasback is a user-pays service.

Plasback determined that the advice issued by government were merely 'guidelines' and should not be seen as definitive in designing scheme options. In fact, the guidelines provide the expectations of a scheme, and any deviations must be approved in advance by the Waste Advisory Board. Clearly the government expectation is that the guidelines be followed unless there is a compelling reason to deviate from them.

The advice from the Ministry for the Environment on this matter dictated that Agrecovery should proceed with scheme design on the basis of creating a scheme that would delivery maximum benefit and impact to the waste issues being addressed and provide a service that was likely to be preferred by users. Agrecovery has convened a Farmer Reference Group and undertaken a wide user survey with this advice in mind.

Farm Plastics Farmer Reference Group Summary

The Farmer Reference Group met on 2 November 2020. Key conclusions from this meeting included:

- Shipping of farm plastics internationally was not a preferred model for managing waste due to carbon footprint.
- Dairy farm and horticulture staff are often very transit, so the system needs to be easy and simple.
- For plastic wrap, when the box/liner is full there needs to be a system to dispose of it immediately. Farmers aren't prepared to wait for three months for it to be collected. It needs to suit the farmer not the recycler. A pick-up within a week, or the ability to drop off within a week would be suitable.

- The scheme needs to run very well as the reputation of poorly run schemes spreads fast in the community, and farmers dis-engage. When there is access to a well-run system, people will engage and use the system. If there are roadblocks to manage recycling, there will be little uptake.
- The size and logistics of the current silage wrap scheme containers are difficult to manage. A smaller crate option that is easy to lift would suit.
- Distance is an issue. A lot of farms are very remote and travelling distances to recycling areas can be large.
- The strongest advocates for change are farmers recycling effectively. It is a large network system, so word of mouth and discussions raising issues of incorrect recycling practice are powerful. Often it is just lack of knowledge of how to solve the issue – who to contact, where to take the waste and costs.
- When purchasing chemicals, farmers and growers look for the Agrecovery logo so that they know the plastic can be recycled / removed from their farm.
- There should be transparency to the system. We need a compelling recycling story that is good for our clean, green image and international brand.
- A not-for-profit scheme for plastic wrap would be ideal. Once the bulk wrap is collected or delivered to the recycling centre, that should be the end of the process for the farmer. The cost for recovery is built into the purchase price of the product.
- Making a massive dividend and then determining what to do with this and how to distribute should not be an option – return the funds back into making the scheme better.
- There should be one scheme, therefore one website, one phone number, one email. Having to register for two schemes (Agrecovery and Plasback) is off-putting for farmers.

Material Flows

In September 2020 PwC was tasked with gathering information on the quantity of farm plastics used in New Zealand and what happens to it at the end of life. The focus was on the volume of plastic packaging distributed to the end user (i.e., farmer or grower), who does not have access to commercial waste solutions.

The key findings from this report included the following:

Figure 11: Weight of plastic packaging of all farm plastics for the year ending 30 June

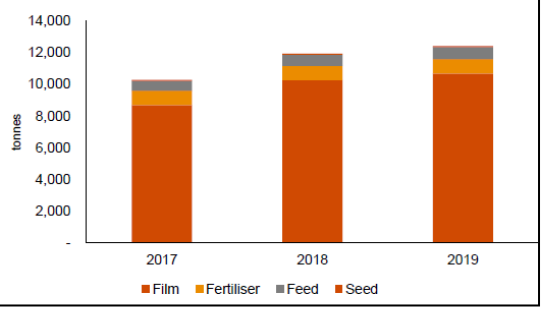


Figure 12: Weight of plastic packaging of all farm plastics by plastic type for the year ending 30 June 2019

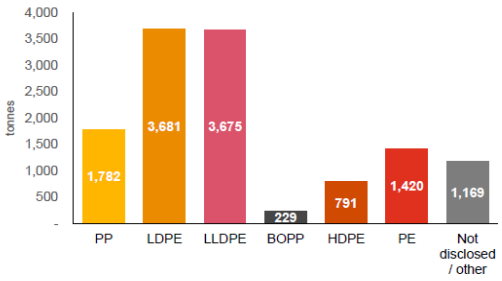
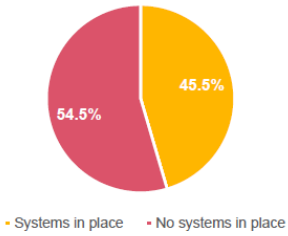


Figure 14: Survey results showing proportion of organisations with systems in place to recycle/recover packaging



- Many respondents who provided additional commentary referenced the importance of systems to recycle/recover packaging.

- Other points made include:
  - The scheme must be designed with farmers and growers in mind:
    - make it easy for farmers and growers
    - give farmers and growers options
    - be cognisant that the agriculture and horticulture sectors have experienced significant legislative change and increasing compliance costs in recent years the new scheme should minimise the compliance burden and cost where possible.
  - Plastic is low value and expensive to recycle.
  - Contamination of plastic will be a challenge.

- Consideration should be given to alternatives (e.g., reusable covers and plastics and/or compositable bags).
- All importers/manufacturers should contribute to the scheme.
- Consider localised/regional processing plants given New Zealand's geographical nature.
- Importance of efficiency in any solution.
- Importance of the process being easy for farmers and growers, to drive positive outcomes.
- Whether the scheme could include other sectors.
- Goal should be to have onshore recycling.
- Compulsory recording of packaging should be considered and would help ensure all equally contribute to the scheme.
- Would like to see industry take a more proactive approach and work closely with the Government to arrive at a sustainable solution.
- Opposition to levies on current supplier members of stewardship schemes.

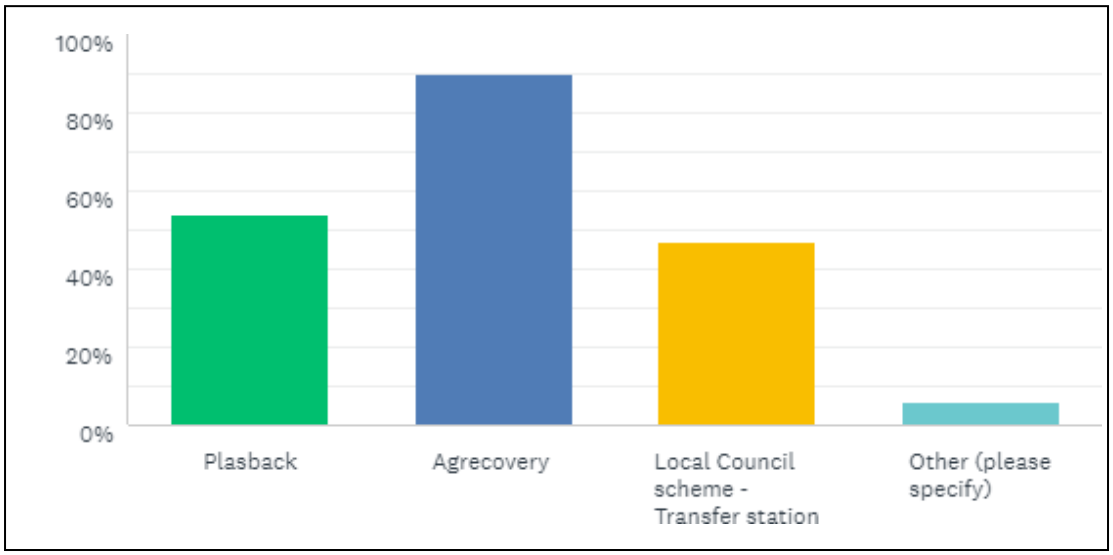
- Existing services comments:
  - Cost and ease of use restrictions can be a barrier to uptake of existing services.
  - Competitor ownership may also be restricting uptake.
  - Preference for services to be not for profit.
  - Regulation and legislation spanning collection services and broader settings (e.g., dumping) would be helpful.

User Survey

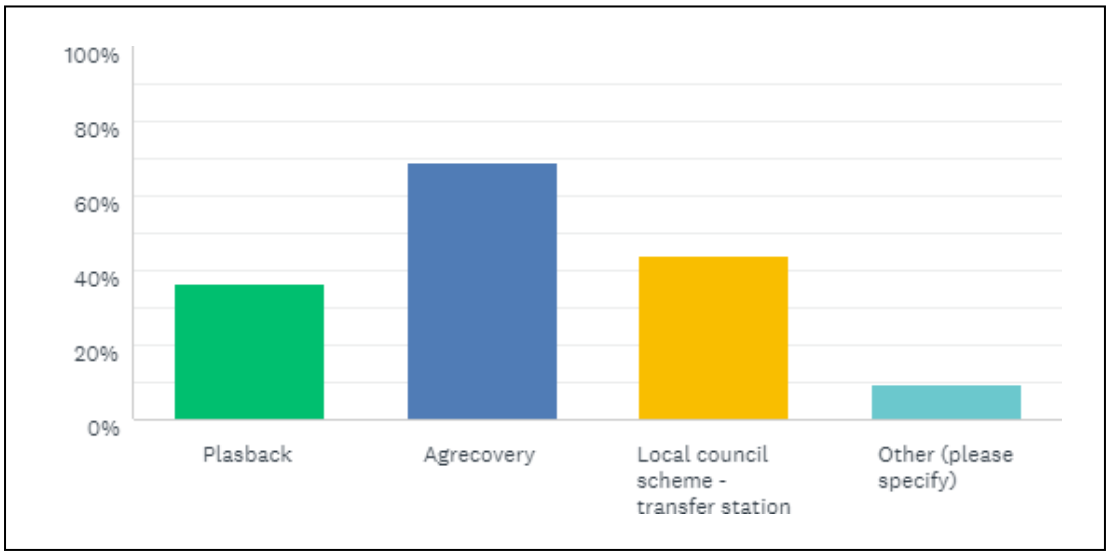
In early 2021, Agrecovery undertook a user survey, with the assistance of Federated Farmers and HortNZ, to gain a stronger understanding of users and user requirements for a farm plastics product stewardship scheme, noting that designing the scheme with the needs of users at the forefront is a key theme of both governmental and stakeholder research undertaken to date.

Key results of this survey are as follows:

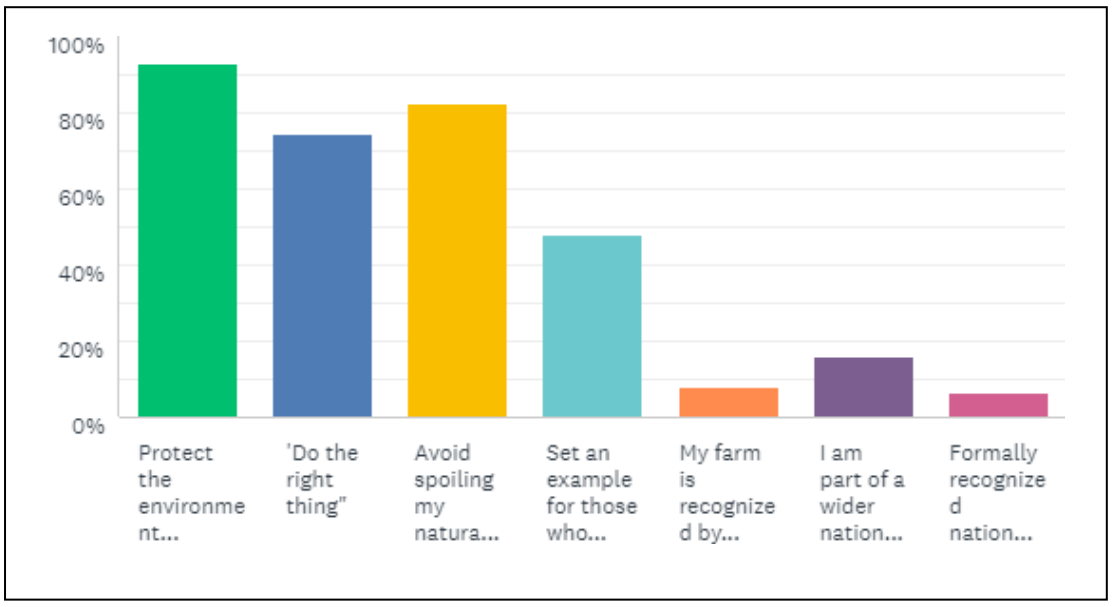
- 132 responses were received.
- The majority of responders operated beef sheep and/or dairy farms (about 30 – 35% each) with the next largest type being horticulture at about 15%.
- 70% of responders were over 50 years old, with about 40% being over 60.
- The majority of farms were between 100 and 500 hectares.
- Nearly two-thirds of responders had been on their properties in excess of 20 years.
- Canterbury and Waikato saw the biggest numbers of responders, but most regions were well represented.
- Farm plastic scheme awareness was as follows:



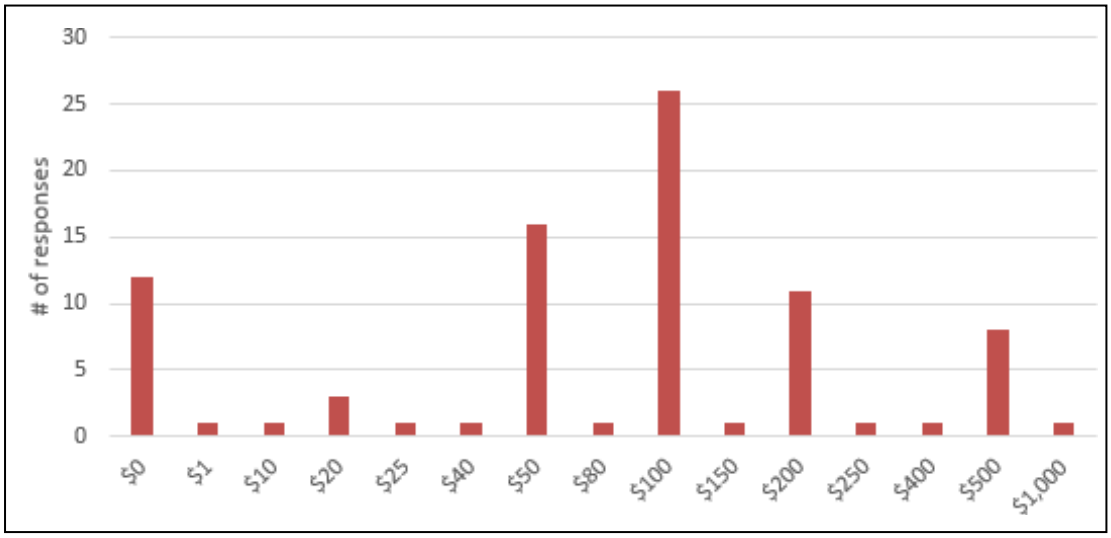
- Farm plastic scheme usage was as follows:



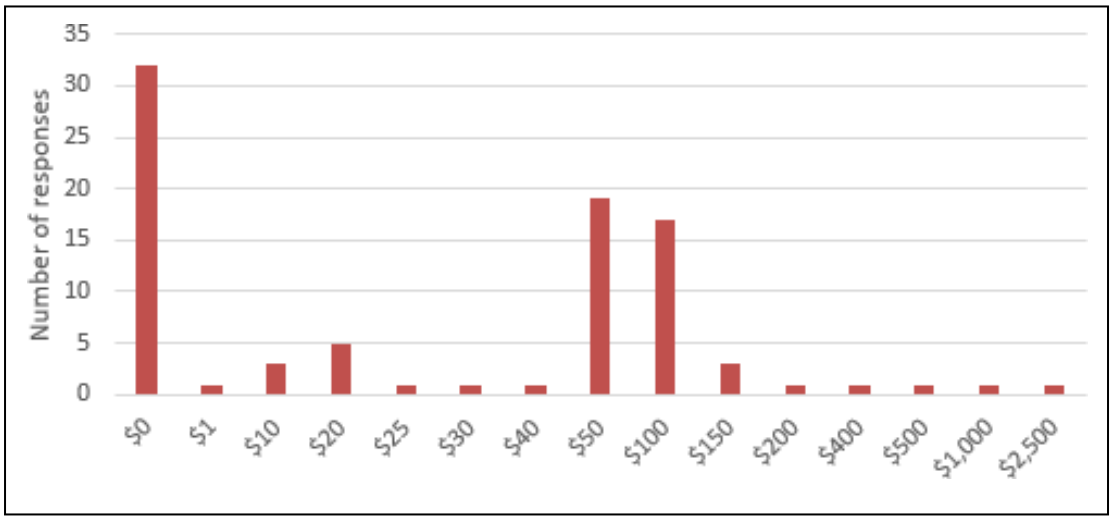
- Nearly half of responders said they would spend nothing on recycling. Most of the remainder said they would spend less than $100 per month.
- About three quarters of responders said they would spend less than two hours per month on recycling efforts.
- The key motivations to recycle farm plastics were as follows:



- About 90% of responders said they were ‘moderately likely’ or ‘highly likely’ to support an expanded product stewardship scheme for farm plastics.
- About 90% of responders said they were ‘moderately likely’ or ‘highly likely’ to transport their farm plastics to a drop-off point 25km or less from their farm.
- About 50% of responders said they were ‘moderately likely’ or ‘highly likely’ to transport their farm plastics to a drop-off point 25 to 100km from their farm.
- Nearly all responders felt that distributors or distributors & retailers should cover the costs of collection and recycling of farm plastics.
- About 20% of responders expected to pay a fee for a service, while the remainder expected a free service or to only pay ‘indirect costs’ in exerting effort such as transporting waste.
- About 90% of responders preferred for a government agency or non-profit to operate the scheme. Only 13% preferred a commercial entity operate the scheme. 65% preferred a non-profit entity.
- The willingness to pay for the annual collection of a plastics bin at the farm gate was as follows:



- The willingness to pay to take plastics to a drop-off point within 25km of the farm was as follows:



- Other comments included:
  - It is a big problem, especially silage wrap and plastic sheets.
  - As a body, we must find a solution to recycle vineyard nets. At the moment, it is horrible to see all this material going to land fill!
  - Should be such that no farmer will consider farm dumping a viable option.
  - We are very happy to support and contribute to any efforts to provide sustainable farm plastic recycling services.
  - One bin is not enough annually. We currently live over 25km from the nearest recycling bins so already pay indirectly to recycle. The cost of recycling silage wrap at present is too high per bag, farmer is paying twice by having to pay for the bag to put the wrap in and then for collection, to get full buy in this cost needs to reduce, quite happy with cost currently (in direct) of recycling smaller containers, but it being free to drop off.
  - If there is any payment made, the scheme would have to be very transparent otherwise it is just another tax.
  - Too many farmers burying or burning plastic, especially bale wrap. Recycling needs to be incentivised if poor disposal practices are to be changed.
  - Cost is a major issue.
  - I'd be more inclined to put up with a bit of hassle to do more recycling - it's more of a battle to pay.

- Bird netting is a HUGE deal for the viticulture industry. Something must be done to address how to responsibly deal with old netting.
- The responsibility for recycling should be on the producer. I would expect the cost would be passed on to consumers.
- Make it easier. e g having a drop off hub always available.
- Prefer recycle costs to be incorporated into cost of items sold i.e., user pays. Would use recycle system if product was collected from farm (say 4 times a year because of quantity), would eliminate extra handling, would not need retail stores (or some such) to modify their premises to enable recycling to be stored etc.
- If recycling costs were incorporated into initial product cost, then 'cashback' at recycling point could be an incentive to recycle.
- Dairy or beef farms that are smaller (not lifestyle) need to have a cost that incentivizes them to participate. If the cost is high, then there will be lower participation from farmers.
- Make it simple and a frequent service. Bale wrap would be the biggie - if this could be recycled that would be great.

- Key themes that emerge from comments include:
  - The issue is urgent and farm plastic needs to be able to be recycled reliably without delay.
  - There are a range of farm plastics that are of concern to users.
  - Cost and frequency of service access are primary concerns, without convenience being secondary but still important.
  - A mix of different service options (i.e., on-farm collection and drop-off services) is demanded.

Scheme Options

Synthesising the feedback from the Farmer Reference Group, the Material Flows Analysis and the User Survey provide remarkably consistent views. It is also notable that there is a very high degree of alignment between user views and the scheme guidelines issued by government.

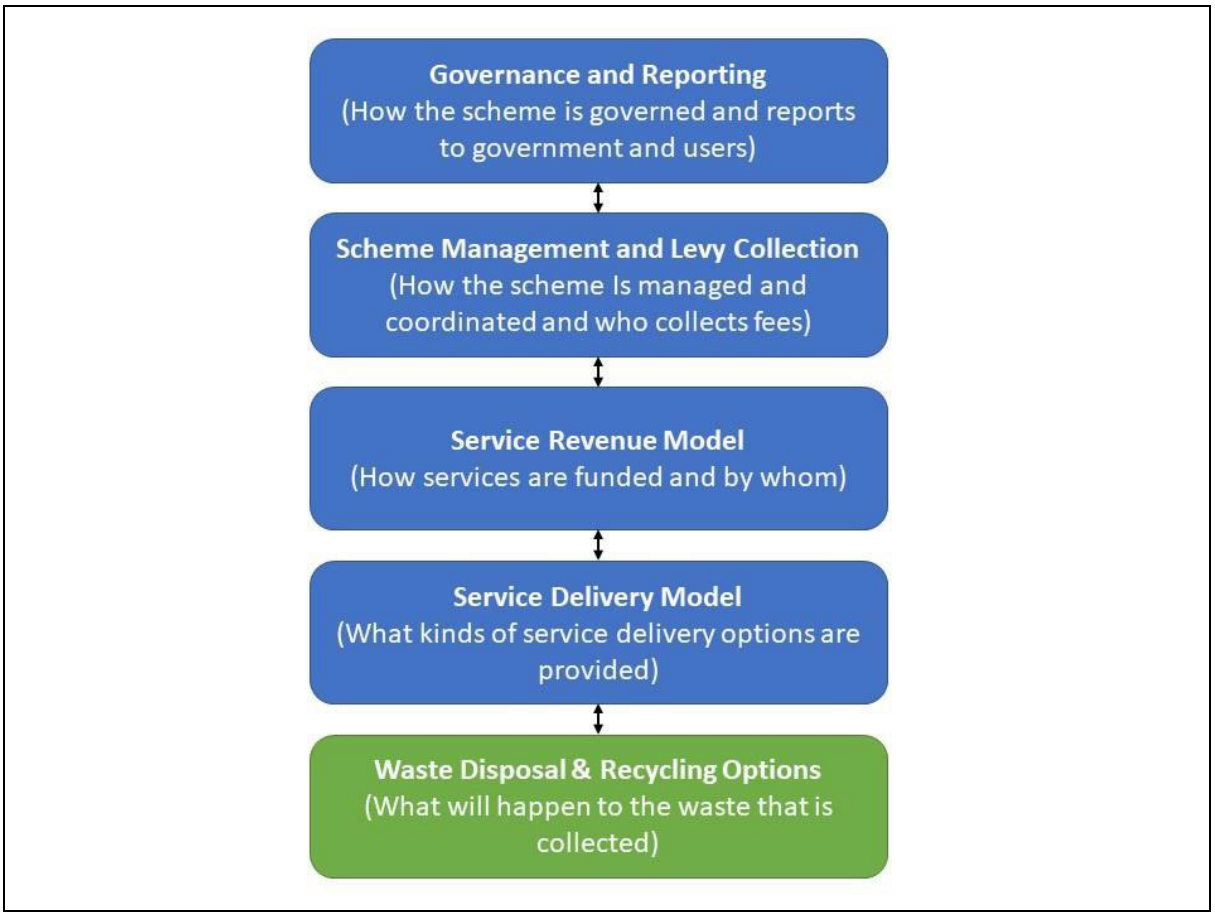
For each of the key user feedback trends noted below, where applicable the corresponding governmental design guidelines requirement is noted in italics:

- **Costs need to be kept to a minimum** and should either be absorbed by the manufacturer/distributor or added to the cost of the products themselves.
    - *"Full net costs for stewardship of priority products at end of life met by product or producer fees proportional to the producer's market share and ease of reuse or recyclability of their product"*
    - *"Free and convenient collection of the priority product for household and business consumers at end-of-life, including rural populations."*
- **Service choice is important**: both collection services and drop-off services are demanded. For drop-off services, these should be within 25km of the farm if possible and be readily accessible.
- **A wide range of plastic types** need to be included
    - *"Plastic wrapping materials for silage or hay including, but not limited to, bale wrap, hay bale netting, baling twine and covers for silage pits;"*
    - *"Plastic sacks for packaging agricultural and horticultural commodities including, but not limited to, fertiliser sacks, feed sacks and bulk tonne bags of polyethylene or woven polypropylene; or"*
    - *"Other plastic packaging and products used for agriculture and horticulture including, but not limited to, protective nets, reflective ground covers, and other plastic containers."*
- The scheme should **begin operation as soon as possible.**
    - "*Applications for accreditation are expected…within one year from the date of priority product declaration for product categories with existing accredited voluntary schemes that wholly or substantially cover that priority product."*
- **Service quality and timeliness** is very important.

- *"All schemes will set and report annually to the Ministry for the Environment on targets that include as a minimum: significant, timely and continuous improvement in scheme performance."*

- Ease of service access is important, preferably through a **single provider and point of contact**.
  - *"The scheme will be the only accredited scheme for that product or have agreements in place with other scheme managers to enable cooperation and cost-effective materials handling and to prevent confusion for household and business consumers; and demonstrate how net community and environmental benefit (including cost-effectiveness and non-monetary impacts) will result from multiple schemes for that priority product."*
- The **scheme design and operation need to be transparent**.
  - *"Clear information to household and business consumers on how the scheme works, how it is funded, and how to find the nearest collection point."*
  - *"Transparent chain of custody for collected and processed materials, to both onshore and to offshore processors, and published mass balances showing rates of reuse/ recycling or environmentally sound disposal of the priority products."*
  - *"Publicly available annual reports that include measurement of outcomes and achievement of targets, fees collected and disbursed, and net cash reserves held as contingency)."*
  - *"Services (e.g., collection, sorting, material recovery and disposal) will be procured using transparent, non-discriminatory and competitive processes open to all competent entities whether existing, new entrant or social enterprise."*
  - *"Clear, regular and open reporting and communication will be given to scheme participants and stakeholders."*
- Plastic should ideally be **recycled on shore**, not exported.
- The scheme should be run by a **not-for-profit entity**, which should apply any operating surpluses to improving the scheme.
  - *"The scheme will be managed by a legally registered not-for-profit entity."*
- Farmers are **highly motivated to recycle**, but many do not appear to do so because of issues with existing scheme design and/or costs.

The degree of alignment between the government guidelines for a scheme design and the wishes of end users is gratifying and aids in advancing the optimum scheme co-design process. This reflects the excellent and broad consultation undertaken before the guidelines were issued and reflects the consistent message being received from farmers and growers. This still enables different options to be considered as to how to best deliver on user needs and the guidelines. Rather than presenting options as completely intact and separate approaches, options are presented here as different component approaches that can be configured to give an overall model, while following the overall scheme structure:



Identified options at each point, and the likely 'pros' and 'cons' of each, are listed below (for discussion and review), with the exception of 'Waste Disposal and Recycling Options' which will be largely dependent on decisions made for the other components.

Agrecovery's assessment of the options that best meet the Guidelines and user preferences at each stage are highlighted in green:

Governance and Reporting:

Design Element & Options	Option Pros	Option Cons
Governance by Agrecovery Board	• Board already in place • Board is representative for farmers and growers • Non-profit status • Strong reputation	• Unlikely all brand owners could directly participate
Governance by Plasback Board	• Experienced in service delivery • High level of commitment to success as a brand owner	• Not competitively neutral • Not a non-profit, so breaches Guidelines including Director appointments
Governance by a new non-profit board	• A 'clean slate' • Ability for all brand owners to be involved • Ability to meet Guidelines on governance	• Costs and time involved in establishment • Duplication of structures and reporting – either to Plasback or Agrecovery
Separate schemes for service options – Agrecovery & Plasback run completely separate schemes	• Allows each service philosophy and approach to run independently	• Breaches Guidelines in terms of a single scheme • Likely to result in confusion for users • Lost opportunities for service harmonisation and efficiencies • Lower collection rates likely because of brand confusion and cost

Scheme Management and Levy Collection:

Design Element & Options	Option Pros	Option Cons
Management by Agrecovery	• Management systems and portal already in place with an emphasis on customer service • Many years' experience operating product stewardship schemes in close alignment with Guidelines • Ability to build farm plastics into existing services to create a 'one stop shop' for rural waste • Most recognised brand for farm plastics • Independent of service delivery and brands so more able to enforce service standards	• May be seen as too associated with agrichemicals • Would require significant additional capacity
Management by Plasback	• Management systems already in place • Built strong brand and most experienced in managing soft farm plastics service • Network of collection contractors in place	• A for-profit organisation • May be perceived conflict of interest in commercial relationships with collectors • Not competitively neutral, causing issue around managing sales data from other brand owners (if products are levied) • Primarily focused on existing revenue and service delivery model
Management by a new organisation	• A 'clean slate' • The ability to design an optimum service from the ground up	• Likely to be very time-consuming and expensive • Need to build a new brand from scratch, and may increase user-confusion • Concerns around investment that has already been made.

Design Element & Options	Option Pros	Option Cons
Separate schemes for service options – Agrecovery & Plasback manage independently	• Allows each service to run independently and increase customer service and demand by competition	• Breaches Guidelines in terms of a single scheme • Likely to result in confusion for users • Lost opportunities for service harmonisation and efficiencies • Increases cost of schemes as infrastructure potentially duplicated

Service Revenue Model:

Design Element & Options	Option Pros	Option Cons
All services funded by producer levies	• Allows maximum choice and benefit for users – selecting best service without cost concerns • Likely to result in significant increases in waste recovery volumes	• Depending on service delivery options, levies would be remarkably high • Provides no incentive for users to contribute to service delivery (e.g., by transporting plastic) to keep costs down
A basic service funded by producer levies, with premium, user-pays add-on services	• Aligns with consistent user feedback as to preference • Provides a choice to users depending on context, volume and need • Meets Guidelines by providing a free service, while enabling those willing to pay with a premium option • Ensures that the service model that Plasback has built remains in place and available	• The majority of users may prefer a drop-off service, threatening the viability of a collection service • Contamination issues may be more difficult to manage with a drop-off service • A hybrid service may add complexity in determining the criteria and service expectations.
All services user-pays	• Allows for user costs to be directly proportionate to the cost of collection and disposal, providing a fair model • Minimises burden on brand owners and avoids product cost increases	• Does not deliver meaningful product stewardship and means brand owners cannot participate • Breaches Guidelines in terms of providing a free service and services being funded by product or producer fees • Likely to result in relatively low rates of waste recovery

Service Delivery Model:

Design Element & Options	Option Pros	Option Cons
On-farm collection only	• Provides the most convenient level of service • Enables checks for contamination to be undertaken at pick-up • Likely to achieve remarkably high rates of collection if provided without cost to users	• Likely to increase service costs, particularly to more remote areas where such services may be simply uneconomic to provide • Likely to have a greater carbon impact due to dedicated vehicle movements, particularly to remote locations. This would be exacerbated if careful logistical planning is not in place.
Local drop-offs plus on-farm collections	• Aligns with consistent user feedback as to preference • Provides a choice to users depending on context, volume and need • Improves efficiency by only collecting off farms for higher volume users • Ensures that the service model that Plasback has built remains in place and available	• The majority of users may prefer a drop-off service, threatening the viability of a collection service • Contamination issues may be more difficult to manage with a drop-off service • A drop-off service may add service complexity
Local drop-offs only	• Minimises scheme costs • Ensures users are engaged and contributing towards good waste outcomes • Likely to minimise carbon impact as users are likely to combine drop-offs with other activities	• May result in lower volumes of waste recovery by removing user choice, particularly for higher volume users • May overwhelm drop-off points with volume

The next step for the development of a product stewardship scheme is for stakeholders to consider the options provided here and determine how a scheme should be optimally configured. While Agrecovery has suggested its view of the preferred options, it is now incumbent on the wider industry to consider

these and determine the way forward to meet government guidelines and provide a service that enhances the industry, recovers waste, and meets user requirements.

The alignment between user requirements and governmental guidelines is a strong starting point for a product stewardship scheme, but there will be some challenges in reconciling these requirements with the current business model offered by Plasback. It must be recognised that Plasback has invested significant funds and effort in developing tis model and brand, and it is important that this is recognised and that the maximum benefit is retained in transitioning to a regulated product stewardship model.

Likewise, the potential for Agrecovery to offer farmers an integrated ‘one-stop shop’ for farm wastes aligns very strongly with efficiency goals and farmer preference and offers a unique governance structure that can truly represent farmer interests.

It will be important for individual organisation interests to be set aside to craft a product stewardship scheme that will work sustainably to recover plastic wastes from farms and ensure the recovery potential form this waste is realised. There are clearly different approaches represented among the stakeholders, but negotiating a united position is critical and necessary, and is now the goal for the Product Stewardship Advisory Group.

Appendix G

Agrecovery/Plasback meeting, 14 May 11.00am - 12.15 pm

Friday, 14 May 2021

12:19 PM

In attendance:

Agrecovery: Tony Wilson, Richard Carroll

Plasback: Chris Hartshorne, Phil Cameron, Chris Dawson

Carina: Chris Keeling (Facilitator)

General discussion:

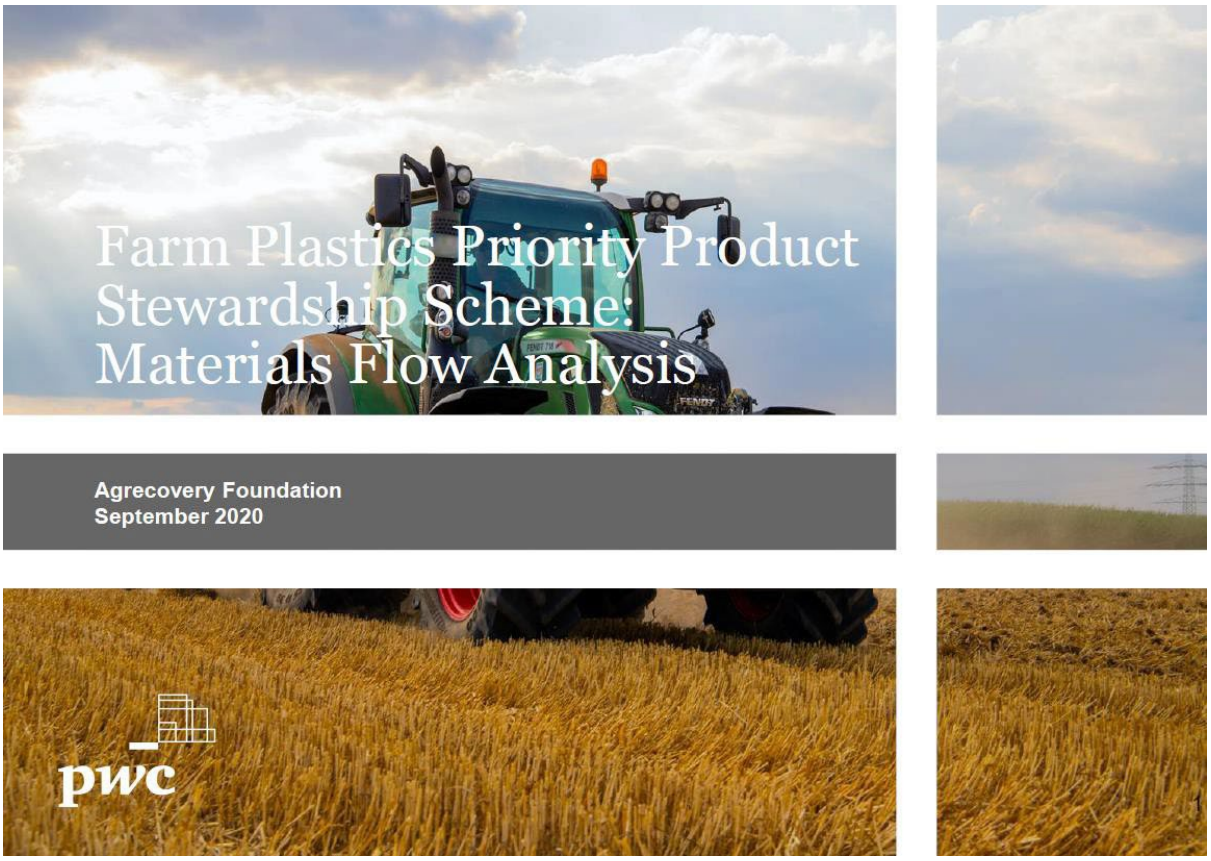
- Plasback has fundamental disagreement with the government guidelines, specifically around not-for-profit requirements and need for product levies. This is something it needs to discuss with MfE. Richard commented that the guidelines are what this project needs to work to, and the report outlines a scheme that fits with that.
- Overall, Plasback struggles to see how it would fit into a new scheme.
- Plasback would like to see some recognition for being the currently accredited product stewardship scheme. The Plasback model has come from 15 years of development. It feels it is the most appropriate way to provide a product stewardship scheme for farm plastics, i.e., on-farm collection, no levies, how to deal with contamination, etc. Richard acknowledged this and stated the need for Plasback to continue providing a service - this can happen as part of a new scheme.
- Richard queried whether a transitional plan could be put in place, where Plasback could transition into a new scheme over a longer period. This is a concept that could be tested with MfE - both Plasback and Agrecovery agreed to pursue this further.

Specific feedback on report:

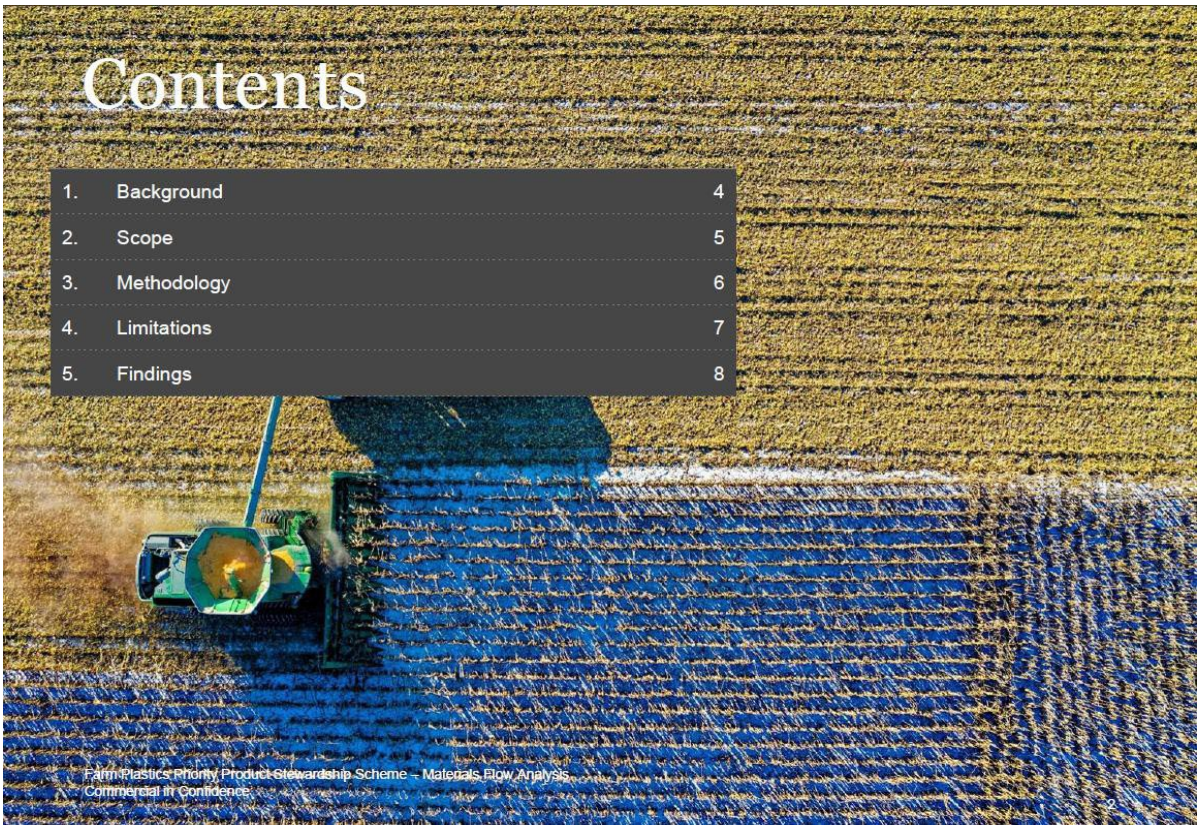
- Plasback provided limited feedback on specific elements of the report but will provide written comments in the next few weeks.
- Plasback doesn't 'trust' the report. Feel that it is written with an Agrecovery slant.
- Commented that the report should have provided commentary on the applicability/suitability of the government guidelines. Tony stated that this was out of scope - guidelines are gazzetted and this is now about designing a scheme that complies.
- Plasback commented that 130 farmers not enough to give a true representation of what farmers think. Richard stated that the questionnaire was provided to a wider group but only 130 responded, which was a disappointing turnout (possibly due to farmer fatigue with being queried on this topic). Richard also noted that the user feedback was aligned with feedback from farmer reference groups.
- Plasback disagrees with drop off method as part of the scheme. Richard commented that users had asked for flexibility, specifically drop offs, and Agrecovery offer on-farm collection to bigger farms with high volumes.
- The report doesn't cover recycling options or financials. Plasback struggles to see how this will work. Agrecovery commented that this is part of a later stage in the project.

Appendix H

Price Waterhouse Coopers report on quantities of farm plastics sold in 2017, 2018 & 2019



Contents



Background

In August 2019 the Government released a public consultation document proposing regulated product stewardship to deal with environmentally harmful products before they become waste. The programme of work is part of the Government's longer-term goal of moving to a more efficient, low-emissions, sustainable and inclusive economy for New Zealand.

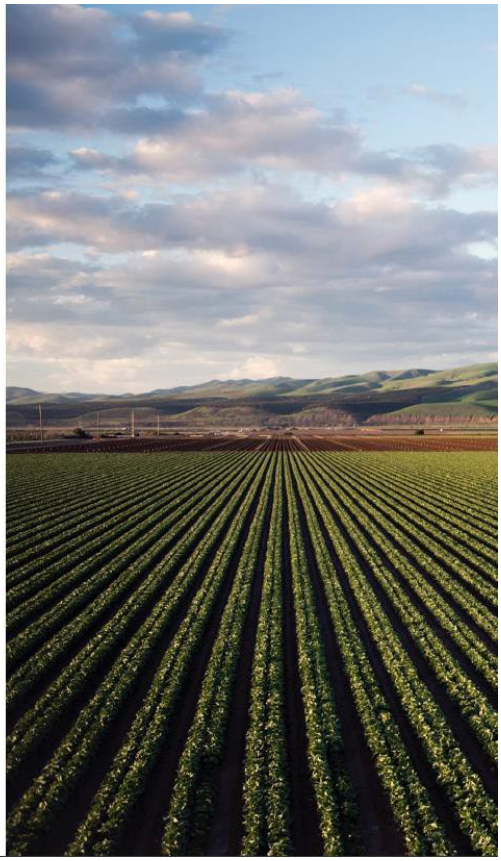
While there are 14 existing accredited schemes in New Zealand, all are currently voluntary. Regulated schemes help create a level playing field, ensure full participation in the scheme, and create better incentives to reduce waste and divert materials from landfills.

Among other products, a regulated product stewardship scheme for farm plastics has been proposed by the Government. The following products are in-scope, with the first two items being the initial priorities:

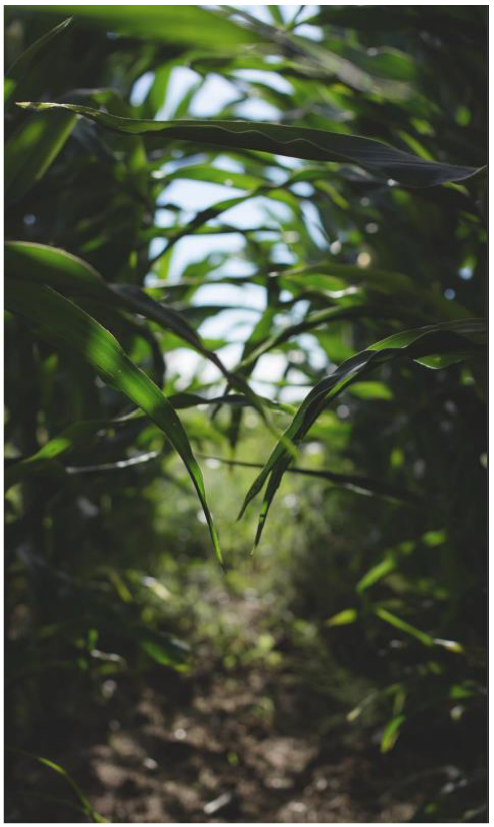
- Seed, feed and fertiliser bags (eg woven fertiliser polypropylene (PP) supersacks)
- Crop packaging films (eg silage wrap/covers and horticultural films/netting)
- Other plastic packaging and products used for agriculture and horticulture

The Agrecovery Foundation ('Agrecovery') has been appointed by the Ministry for the Environment to lead the design of the Farm Plastics Priority Product Stewardship Scheme ('the scheme'). A not-for-profit charitable trust, with Trustees who represent key areas of the primary sector, Agrecovery operates the voluntary agricultural chemical container product stewardship scheme.

Agrecovery has asked PwC to support the co-design of the farm plastics priority product stewardship scheme. This report relates to the current volume of farm plastics.



Scope



PwC was tasked with gathering information on the quantity of farm plastics used in New Zealand and what happens to them at the end of their useful life. The focus was on the volume of plastic packaging distributed to the end-user (ie farmer or grower), who does not have access to commercial waste solutions.

While this information provides a better understanding of total farm plastic that end up on-farm in New Zealand every year, it is expected that findings will continue to be refined as further information becomes available.

Methodology

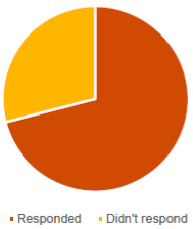
Farm plastics survey

PwC developed a survey to collect data on the volume of the following farm plastics:

- seed, feed and fertiliser bags
- crop packaging films (eg silage wrap/covers and horticultural films/netting).

Agrecovery circulated this survey to 42 retailers and producers of these priority products, who together represented the largest participants in the sector. There was a strong response to the survey with 71% of all recipients responding, including all major participants.

Figure 1: Survey response rate



Materials flow modelling

Data from the survey was analysed and aggregated into the number of units and weight of packaging by product type and plastic type.

Results are presented on a June year-end basis.

During this process, issues with some survey entries were identified. Agrecovery conducted further consultation with relevant stakeholders (where applicable) to help ensure the data was robust.

Where necessary, survey data was also cleansed to improve reliability. Data cleansing techniques involved:

- identifying and removing duplicate data
- identifying data gaps and, where applicable, smoothing respondents' returns.

Limitations

1) Limited information on the weight of plastic packaging for seed and feed

Organisations provided limited or no information on the weight of the plastic packaging for seed and feed bags. We created average weights for different sized bags using the information we received and applied this to the relevant data.

Table 1 shows the average weights used for seed and feed bags.

Actual weights will differ from those provided in Table 1 due to:

- different plastic types
- required plastic varying for a given bag weight, depending on the contents of the bag itself.

Table 1: Average seed and feed bag weights

Size of bag (kg)	Weight of bag (grams)
1-5kg	35
5kg	70
10kg	55
20kg	100
25kg	100
30kg	120
500kg	2,200
1000kg	2,600

2) Some information on 'units sold' missing

In places, organisations did not provide information on units sold for all financial years. Where this had a material impact on the results we estimated market share for years omitted based on market share in other years. We then used this as a proxy to estimate material flow for applicable organisations.

3) Some stakeholders chose not to respond to the survey

42 organisations were approached to complete the survey. 12 organisations did not respond.

No attempt has been made to ascertain volumes attributable to those participants who have not completed the survey.

While their responses would have been helpful, the response to the survey was strong at 71%, and includes all major sector participants.

4) Risk of double counting

Given that survey participants include both retailers and producers, there is the possibility that volume has been counted multiple times.

To mitigate this risk, the survey explicitly asked that organisations only provide data on the volume of plastic packaging that they distributed to the end-user directly (ie the farmer or grower).

Findings – Seed and Feed

Figure 2: Number of seed bags sold for the year ending 30 June

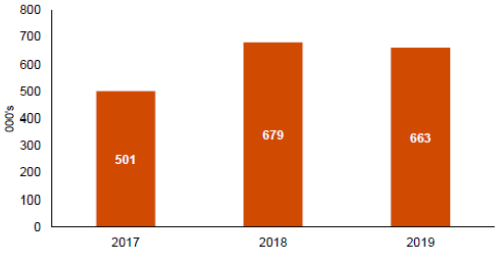


Figure 3: Weight of plastic packaging of seed bags by plastic type for the year ending 30 June

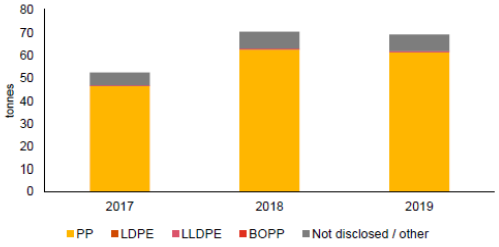


Figure 4: Number of feed bags sold for the year ending 30 June

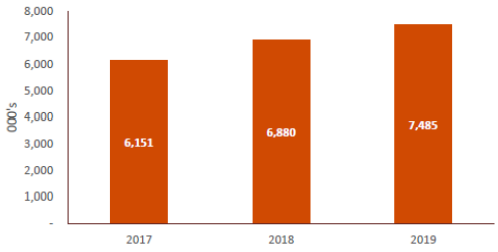
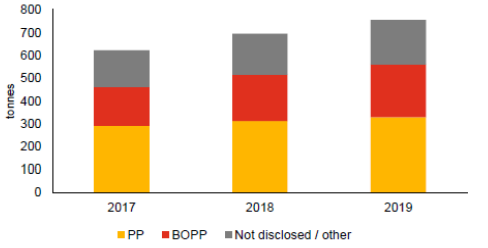


Figure 5: Weight of plastic packaging of feed bags by plastic type for the year ending 30 June



Findings – Fertiliser

Figure 6: Number of fertiliser bags sold for the year ending 30 June

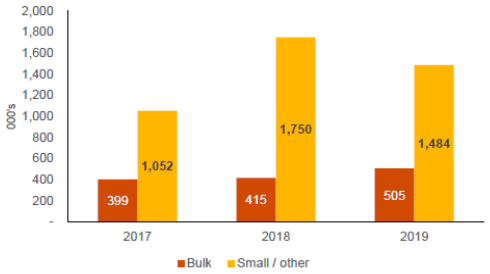


Figure 7: Weight of plastic packaging of fertiliser bags for the year ending 30 June

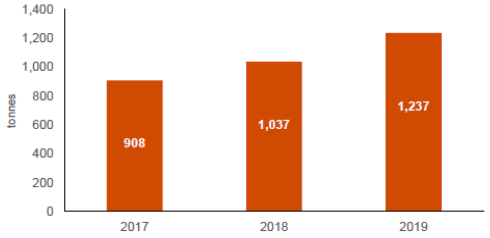
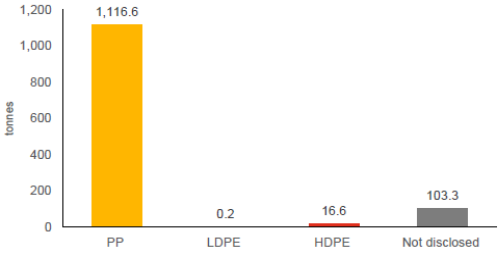


Figure 8: Weight of plastic packaging of fertiliser bags by plastic type for the year ending 30 June 2019



Findings – Film

Figure 9: Weight of plastic packaging of film by plastic type for the year ending 30 June

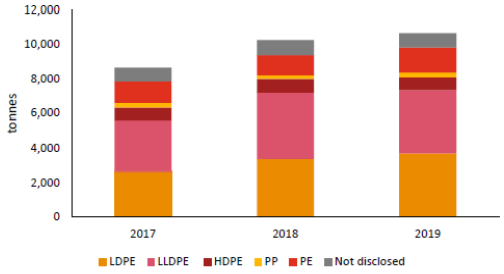
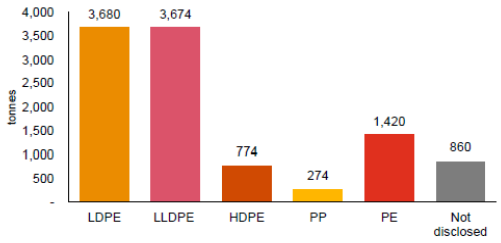


Figure 10: Weight of plastic packaging of film by plastic type for the year ending 30 June 2019



Findings – Summary

Figure 11: Weight of plastic packaging of all farm plastics for the year ending 30 June

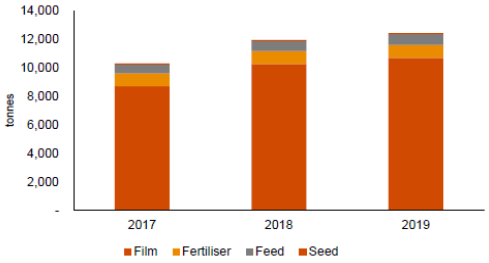
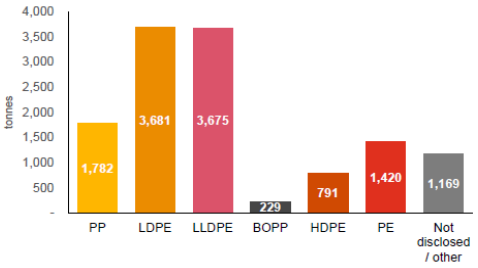


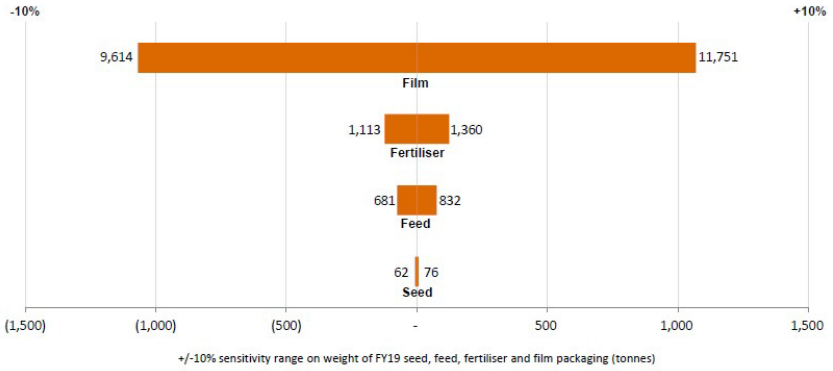
Figure 12: Weight of plastic packaging of all farm plastics by plastic type for the year ending 30 June 2019



Findings – Sensitivity

Figure 13: Sensitivity analysis for FY19 seed, feed, film and fertiliser plastics weight

The below chart illustrates the magnitude of change if there was a +/- 10% variation in volume across packaging types.



Findings – Qualitative results

Figure 14: Survey results showing proportion of organisations with systems in place to recycle/recover packaging

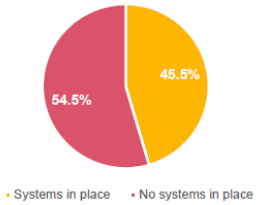
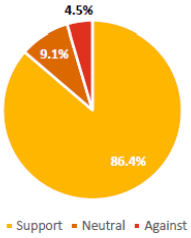


Table 2: Survey results rating how important the issue of plastic waste is for respondent companies and their customers

Importance rating	*Proportion of respondents*
Very important	66.7%
Important	33.3%
Neutral	-
Unimportant	-

Findings – Qualitative results

Figure 15: Survey results showing proportion of organisations supporting farm plastics being declared a priority under the Waste Minimisation Act

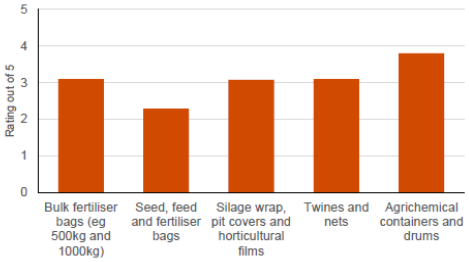


Themes from commentary:

- Many respondents who provided additional commentary referenced the importance of systems to recycle/recover packaging
- Other points made include:
  - Importance of efficiency in any solution.
  - Importance of the process being easy for farmers and growers, in order to drive positive outcomes.
  - Whether the scheme could include other sectors.
  - Goal should be to have onshore recycling.
  - Compulsory recording of packaging should be considered, and would help ensure all equally contribute to the scheme.
  - Would like to see industry take a more proactive approach and work closely with the Government to arrive at a sustainable solution.
  - Opposition to levies on current supplier members of stewardship schemes.

Findings – Qualitative results

Figure 16: Survey results rating existing services provided to farmers and growers to manage disposal of farm plastics (1 being poor, 5 being outstanding)



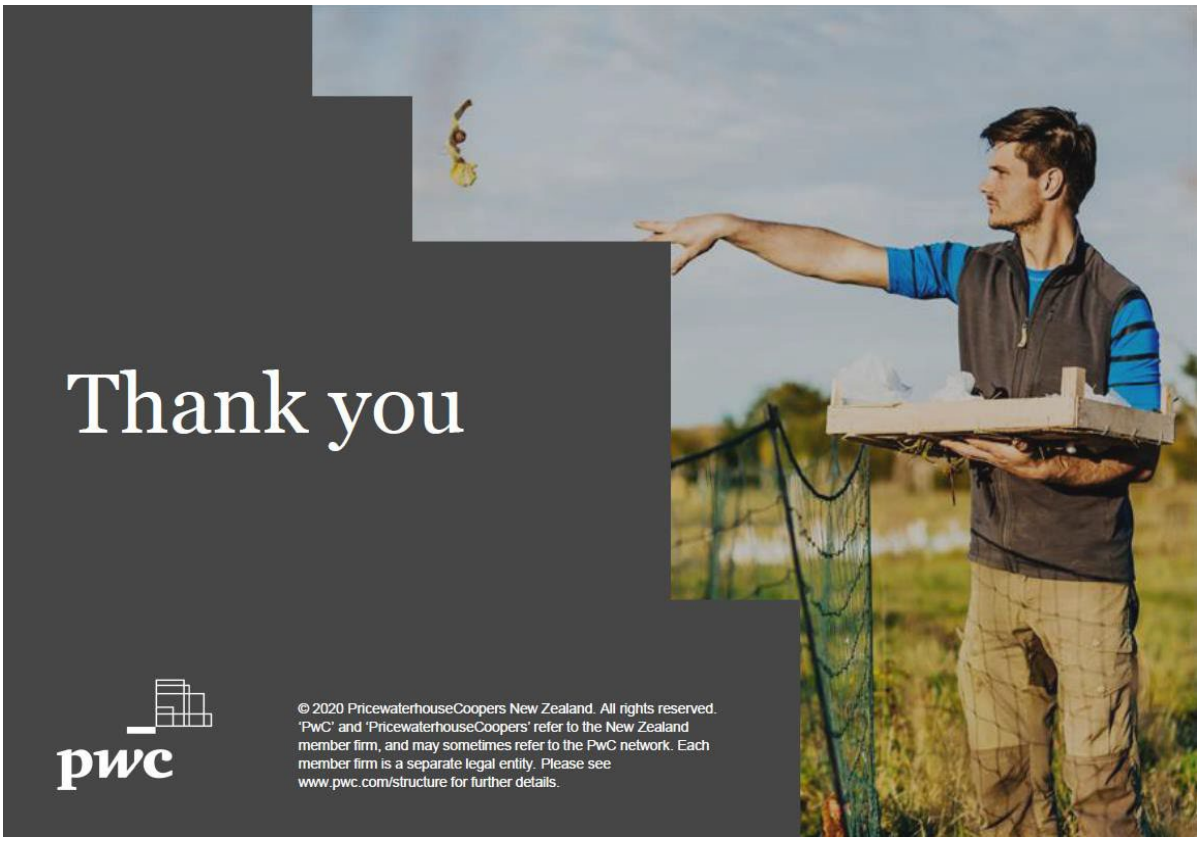
Themes from commentary:

- Cost and ease of use can be a barrier to uptake of existing services.
- Competitor ownership may also be restricting uptake.
- Preference for services to be not for profit.
- Regulation and legislation spanning collection services and broader settings (eg dumping) would be helpful.

Findings – Qualitative results

Other themes from commentary:

- The scheme must be designed with farmers and growers in mind:
  - make it easy for farmers and growers
  - give farmers and growers options
  - be cognisant that the agriculture and horticulture sectors have experienced significant legislative change and increasing compliance costs in recent years – the new scheme should minimise the compliance burden and cost where possible.
- Plastic is low value and expensive to recycle.
- Contamination of plastic will be a challenge.
- Consideration should be given to alternatives (eg reusable covers and plastics and/or compostable bags).
- All importers/manufacturers should contribute to the scheme.
- Consider localised/regional processing plants given New Zealand's geographical nature.



Appendix A: Restrictions

This report has been prepared for the Agrecovery Foundation to assist with the design of the Farm Plastics Priority Product Stewardship Scheme. This report has been prepared solely for this purpose and should not be relied upon for any other purpose. We accept no liability to any party should it be used for any purpose other than that for which it was prepared.

This report has been prepared solely for use by the Agrecovery Foundation and may not be copied or distributed to third parties without our prior written consent.

You have advised us that you may make the report available to other parties. We note that we do not accept any responsibility or liability (whether in contract, tort (including negligence) or otherwise) to any person other than yourself for the consequences of any reliance on this report.

To the fullest extent permitted by law, PwC accepts no duty of care to any third party in connection with the provision of the Report and/or any related information or explanation (together, the "Information"). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the Information.
We have not independently verified the accuracy of information provided to us and have not conducted any form of audit in respect of the Agrecovery Foundation. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied.

We reserve the right, but will be under no obligation, to review our analysis and if we consider it necessary, to revise this report, if any additional information, which was in existence on the date of this report, was not brought to our attention, or subsequently comes to light.

The Agrecovery Foundation is ultimately responsible for the inputs and assumptions populated in this report. In any case, we are unable to guarantee that this report is 100% free of errors and accordingly we give no such guarantee.

It is not possible to assess with any certainty the implications of COVID-19 on the Agrecovery Foundation or the economy as a whole, both generally in terms of how long the current crisis may last and more specifically in terms of its impact on a specific business or the wider economy. We note our advice is subject to significant caveats and caution at this time due to uncertainty that exists for businesses including (amongst other matters) the demand for products or services, access to capital, supply chain disruption, and the extent and duration of the measures implemented by various governments and authorities to contain and / or prevent spread of COVID-19.

This report is issued pursuant to the terms and conditions of our engagement letter dated 14 May 2020.

Appendix B: Glossary

BOPP	Biaxially oriented polypropylene
HDPE	High density polyethylene
LDPE	Low density polyethylene
LLDPE	Linear low density polyethylene
MfE	Ministry for the Environment
PE	Polyethylene
PP	Polypropylene

Appendix C: Materials Flow Data

Table 3: Number of seed bags sold for the year ending 30 June

Plastic type	*Units sold FY-17 (#)*	*Units sold FY-18 (#)*	*Units sold FY-19 (#)*
1-5kg	27,296	34,877	32,354
5kg	13,136	19,003	19,068
10kg	3,412	7,287	9,079
15kg	8,682	11,451	11,974
25kg	417,309	564,563	547,649
40kg	28,169	37,376	38,193
500kg	1,591	2,043	2,112
1000kg	10	30	50
Not disclosed	1,500	1,800	2,100
Total	**501,106**	**678,430**	**662,579**

Table 4: Weight of plastic packaging of seed bags by plastic type for the year ending 30 June

Plastic type	*Estimated weight FY17 (tonnes)*	*Estimated weight FY18 (tonnes)*	*Estimated weight FY19 (tonnes)*
PP	46.27	62.55	61.34
LDPE	-	-	-
LLDPE	0.43	0.45	0.42
BOPP	-	0.10	0.20
Not disclosed / other	5.60	7.47	7.36
Total	**52.29**	**70.57**	**69.32**

Appendix C: Materials Flow Data (cont.)

Table 5: Number of feed bags sold for the year ending 30 June

Plastic type	*Units sold FY17 (#)*	*Units sold FY18 (#)*	*Units sold FY19 (#)*
10kg	109,395	112,885	114,063
20kg	3,670,472	4,539,509	4,905,616
22.7kg	15,889	17,773	19,336
25kg	2,961,321	2,888,412	3,184,122
30kg	3,836	4,291	4,668
40kg	365	408	444
500kg	4,943	5,042	5,636
Not disclosed	6	11	-

Table 6: Weight of plastic packaging of feed bags by plastic type for the year ending 30 June

Bag size	*Estimated weight FY17 (tonnes)*	*Estimated weight FY18 (tonnes)*	*Estimated weight FY19 (tonnes)*
PP	321.52	344.42	363.46
BOPP	183.70	220.14	251.19
Not disclosed / other	178.61	199.60	217.29
Total	**683.83**	**764.16**	**831.94**

Appendix C: Materials Flow Data (cont.)

Table 7: Number of fertiliser bags sold for the year ending 30 June

Bag type	*Number of units (FY17)*	*Number of units (FY18)*	*Number of units (FY19)*
Bulk	358,702	373,326	454,109
Small / other	946,549	1,574,924	1,335,853

Table 8: Weight of plastic packaging of fertiliser bags by plastic type for the year ending 30 June

Bag size	*Estimated weight FY17 (tonnes)*	*Estimated weight FY18 (tonnes)*	*Estimated weight FY19 (tonnes)*
PP	769.23	856.41	1,004.91
LDPE	-	0.14	0.19
HDPE	13.45	13.87	14.92
Not disclosed	35.29	63.31	93.01
Total	**817.97**	**933.72**	**1,113.03**

Appendix C: Materials Flow Data (cont.)

Table 9: Weight of plastic packaging of film by plastic type for the year ending 30 June

Plastic type	*Plastic weight (tonnes) FY17*	*Plastic weight (tonnes) FY18*	*Plastic weight (tonnes) FY19*
LDPE	2,371	3,003	3,312
LLDPE	2,699	3,483	3,307
HDPE	639	738	697
PP	239	198	247
PE	1,152	1,013	1,278
Not disclosed	724	796	774
Total	**7,824**	**9,231**	**9,614**

Appendix D: Survey summary

The survey question and answer format is summarised below.

A. Organisation information

Thank you for taking the time to participate in our survey. We appreciate your feedback. Responses will remain confidential and only aggregated data will be made available.

Q1. Please provide the name of your organisation below:
Q2. What is your name:
Q3. What is your email address:
Q4. What date is your organisation's financial year end?
Q5. Which of the below best describes your organisation (select all that apply)?

- Rural supplies merchant
- Fertiliser supplier
- Agricultural and horticultural plastics (eg silage wrap and horticultural films) supplier
- Seed and/or feed supplier
- Other (please specify)

Depending on the type of organisation selected in Q5, the following tables are presented for the respondent to complete:

- **Rural supplies merchants** are requested to complete tables for bags of seed, feed and fertiliser
- **Fertiliser suppliers** are requested to complete tables for bags of fertiliser
- **Agricultural and horticultural plastics suppliers** are requested to complete tables for crop packaging films eg silage wrap, pit covers, protective nets, ground covers, irrigation pipe, netting and twine
- **Seed and/or feed suppliers** are requested to complete tables for bags of seed and/or feed
- Respondents who answer "**Other**" to Q5 are requested to complete tables for bags of seed, bags of feed, bags of fertiliser and crop packaging films.

Appendix D: Survey summary (cont.)

B. If you supply bags of seed or feed please fill in the tables below:
Please remember that all responses will remain confidential.

When answering these questions, please only include the packaging that is used to distribute goods directly to the farmer or grower.

In the plastic packaging description field, examples might include: 1 tonne bags, 500kg bags, 40kg bags, 25kg bags, 20kg bags etc.

Q6. Bags of seed:

For bags of seed, please describe the plastic packaging type and complete the table.							
		Plastic packaging type (eg PET, HDPE, PVC, LDPE, LLDPE, PP, PS, EPS, other)	Net weight of plastic packaging if known (g)	Units sold FY-17 (No.)	Units sold FY-18 (No.)	Units sold FY-19 (No.)	Any other comments
Plastic packaging description 1	*Free text*	*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
...		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
Plastic packaging description 10		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*

Q7. Bags of feed:

For bags of feed, please describe the plastic packaging type and complete the table.							
		Plastic packaging type (eg PET, HDPE, PVC, LDPE, LLDPE, PP, PS, EPS, other)	Net weight of plastic packaging if known (g)	Units sold FY-17 (No.)	Units sold FY-18 (No.)	Units sold FY-19 (No.)	Any other comments
Plastic packaging description 1	*Free text*	*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
...		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
Plastic packaging description 10		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*

Appendix D: Survey summary (cont.)

C. If you supply bags of fertiliser please fill in the table below:
Please remember that all responses will remain confidential.

When answering these questions, please only include the packaging that is used to distribute goods directly to the farmer or grower.

In the plastic packaging description field, examples might include: 1 tonne bags, 500kg bags, 40kg bags, 25kg bags, 20kg bags etc.

Q8. Bags of fertiliser:

For bags of fertiliser, please describe the plastic packaging type and complete the table.							
		Plastic packaging type (eg PET, HDPE, PVC, LDPE, LLDPE, PP, PS, EPS, other)	Net weight of plastic packaging if known (g)	Units sold FY-17 (No.)	Units sold FY-18 (No.)	Units sold FY-19 (No.)	Any other comments
Plastic packaging description 1	*Free text*	*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
...		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*
Plastic packaging description 10		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Numerical*	*Free text*

Appendix D: Survey summary (cont.)

E. Concluding questions (cont.)

Q13. How would you rate (1 being poor, 3 being average and 5 being outstanding) existing services provided to farmers and growers to manage disposal of:

- Bulk fertiliser bags (eg 500kg and 1000kg)
- Seed, feed and fertiliser bags
- Silage wrap, pit covers and horticultural films
- Twines and nets
- Agrichemical containers and drums

Do you have any comments on the existing services you have rated above?

Q14. Do you have any other thoughts/information/arguments you would like to share that would help us to better understand the farm plastic waste problem we are trying to solve?

Q15. If you have any files you would like to attach, please use the button below.

Appendix D: Survey summary (cont.)

D. If you supply crop packaging films for agricultural or horticultural purposes please fill in the table below:
Please remember that all responses will remain confidential.

When answering these questions, please only include the plastic products that are used for agricultural and horticultural purposes. These include: silage wrap, pit covers, protective nets, ground covers, irrigation pipe, netting and twine.

Q9. Crop packaging films:

For crop packaging films, please describe the plastic type and complete the table.

		Plastic type if known (eg LDPE, MDPE, other)	Total weight of plastic sold FY-17 (tonnes)	Total weight of plastic sold FY-18 (tonnes)	Total weight of plastic sold FY-19 (tonnes)	Any other comments
Silage/baleage wrap						
Bale netting						
Baling twine						
Pit covers						
Mulch film						
Other 1	*Free text*	*Free text*	*Numerical*	*Numerical*	*Numerical*	*Free text*
...		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Free text*
Other 10		*Free text*	*Numerical*	*Numerical*	*Numerical*	*Free text*

Appendix D: Survey summary (cont.)

E. Concluding questions

Q10. Does your company have any systems in place to recover and repurpose/recycle product and/or product packaging? If so, please describe these processes and the quantity of packaging/product you recover?

Q11. How important is the issue of plastic waste for your company and your customers?

- Very important
- Important
- Neutral
- Unimportant

Q12. Does your company support farm plastics being declared a priority product under the Waste Minimisation Act as proposed by the Minister for the Environment?

- Support
- Oppose
- Neutral

Do you have any comments you would like to add on this?

Appendix I
Mahony Horner Lawyers legal review of the GPSS

Mahony Horner Lawyers

20 December 2021

The Agrecovery Foundation
For: Tony Wilson

By email: tony.wilson@agrecovery.org.nz

Dear Tony

FARM PLASTICS PROJECT REPORT — LEGAL REVIEW

1. Thank you for your instructions to review the Agrecovery Foundation's (**Agrecovery**) Farm Plastics Project (**Project**) Report to the Ministry for the Environment (**MfE**). You have asked us to provide an overview of the Report's compliance with the requirements for accreditation of a product stewardship scheme (**PSS**) in the Waste Minimisation Act 2008 (**WMA**) and associated ministerial guidelines.

2. We have reviewed the summary (**Summary**) of the draft Project Report dated 10 November 2021 (**Report**) and relevant parts of the Report. We set out our comments **below**. We also provide some additional comments on relevant compliance obligations for completeness.

3. Overall, subject to our comments **below**, we are comfortable with a finalised copy of the Report being provided to MfE as part of Agrecovery's ongoing development of the Project.

Background

4. Agrecovery has prepared the Report in response to the Declaration of Priority Products Notice 2020 (**Notice**). The Report sets out Agrecovery's proposal for managing farm plastic waste. That proposal involves the establishment of three new PSSs for three types of farm plastics and the integration of those PSSs with Agrecovery's existing agrichemicals PSS.

5. Agrecovery intends to submit the Report to MfE for review before making a formal application for accreditation in accordance with the WMA. Therefore, the scope of our advice is limited to the Report's compliance with the accreditation provisions in the WMA and associated ministerial guidelines. Our review does not extend to the adequacy of the particulars in the Report, but we do make recommendations on this where appropriate.

Legal Framework

6. Sections 13, 14, and 15 of the WMA set out the requirements for a PSS to be accredited. Section 13(2) sets out the fundamental form and content requirements for applications for accreditation. Section 14 sets out what a PSS must contain to qualify for accreditation. Section 15 sets out when the Minister for the Environment (**Minister**) must accredit a PSS.

7. Section 12 of the WMA enables the Minister to issue guidelines regarding the contents and expected effects of PSSs for priority products. The Associate Minister has issued the General Guidelines for Product Stewardship Schemes for Priority Products Notice 2020 (**Guidelines**), setting out additional requirements for applications for accreditation of PSSs.

Waste Minimisation Act 2008

Applications for Accreditation

8. Sections 13(d), (e), and (f) of the WMA require applications for accreditation to:

   a. identify how the PSS meets the requirements for accreditation under section 14 of the WMA;

   b. identify whether regulations under sections 22 or 23 will be required to implement the PSS; and

   c. include evidence of the agreement of the participants in the PSS.

9. We set out **below** our comments on the Report's compliance with section 14 of the WMA.

10. The Summary and the Report contain several references to the new PSSs being "*regulated*", but do not expressly identify whether regulations are required to implement them. We recommend that the Report identify and explain the content of regulations that are required to make the PSSs effective.

11. The Summary and the Report also contain references to agreements that Agrecovery will enter into with PSS participants (ie collection services and recovery hubs). Since Agrecovery has not started entering into these agreements, evidence of them cannot be provided. Agrecovery will need to submit evidence of each participant's agreement to participate in the PSSs as part of its formal application for accreditation.

Requirements for Accreditation

12. As mentioned **above**, section 14 of the WMA sets out what a PSS must contain to qualify for accreditation. There is a section near the end of the Report that describes each PSS and raises and addresses the items in section 14. Given the stage Agrecovery is at with the Project, these sections largely explain what Agrecovery intends to do in respect of each item, rather than explain how each PSS complies with them. We make a general observation that each of these sections needs to be expanded upon and further particularised following discussions with MfE and further development of the Project.

13. Section 14(e) of the WMA requires a PSS to list the persons who have agreed to participate in the PSS and assign responsibility to them for meeting the PSS's objectives. As mentioned **above**, Agrecovery has not yet entered into agreements with participants. We recommend that Agrecovery's formal application for accreditation lists the responsibilities of the participants who agree to participate in each of the PSSs.

14. Section 14(f) of the WMA requires a PSS to specify the arrangements for making decisions under the PSS, the control and overall operation of the PSS, and keeping records and making reports under the PSS. The Report explains that Agrecovery will make all decisions in respect of the PSSs, albeit in consultation with stakeholders and participants. Agrecovery will naturally have control over and operate the PSSs as the nexus of all contracts. The Report also explains that reports on the PSSs' performance will be provided annually. Nevertheless, we consider the decision-making and reporting framework would benefit from further particulars. We recommend the Report set out exactly how decisions will be made, how records will be managed, and when and how reports will be made for each PSS.

15. Section 14(h) of the WMA requires a PSS to identify the processes for compliance and enforcement of any agreements between PSS participants. The Report contemplates MfE conducting all enforcement activities under the PSSs. This is appropriate in respect of the regulations that will be necessary to implement the PSSs. However, MfE's Guidance to Completing the Application Form for Accreditation of a Product Stewardship Scheme states that MfE "*does not intend to be involved in the internal enforcement of [PSS]s unless it is enforcement against parties who breach regulations*". We therefore recommend that Agrecovery's agreements with participants contain appropriate enforcement mechanisms.

16. Section 14(i) of the WMA requires a PSS to provide for assessing the PSS's performance and for reporting on its performance to the Minister. While the Report does contain methodologies for assessing the achievement of PSS objectives, they would benefit from further particulars. We recommend assessment methodologies and reporting frameworks are further developed in discussions with MfE.

17. Section 14(l) of the WMA requires a PSS to clearly outline how the PSS is to be funded. While the Report contains considerable detail about how the PSSs will be funded, the sections describing each PSS do not address this. We recommend that funding is raised and addressed in respect of each individual PSS, as section 14(l) contemplates.

Accreditation by the Minister

18. Section 15 of the WMA requires the Minister to accredit a PSS if they are satisfied that the PSS, among other things:

    a. is consistent with New Zealand's international obligations; and

    b. is consistent with the Guidelines.

19. We provide an overview of the consistency of the Report with the Guidelines and New Zealand's international obligations **below**.

Guidelines

20. The Guidelines specify additional form and content requirements for applications for accreditation of PSSs for priority products. Most importantly for our purposes, item 5 (which is not numbered) requires applications to specify how the proposed PSS provides for several matters within the categories of governance, PSS operations, and targets.

21. Item 5(1)a.ii. requires independent audits to be conducted on PSS performance and included in annual reports to MfE. While the Report does contemplate that audit functions will be performed by MfE, the Guidelines indicate otherwise. We recommend a procedure for obtaining annual independent audits be raised and discussed with MfE.

22. Item 5(1)a.iv. requires specification of how governance activities will adhere to the Commerce Commission's guidelines on collaborative activities between competitors. The Report does not reference those guidelines. We recommend these guidelines are considered, raised, and addressed in Agrecovery's formal application for accreditation. We comment on the general application of the Commerce Act 1986 (**Commerce Act**) **below**.

23. Item 5(1)a.vi. contains requirements for governing bodies of PSSs. The requirements address open and transparent appointments, stakeholder representation, and best practice. The Report explains that each PSS will be managed by Agrecovery and governed by a strengthened Agrecovery Board. The Board's performance will be measured against ISO 37000:2021 (Governance of organisations). Agrecovery is a charitable trust, incorporated as a board under the Charitable Trusts Act 1957. Its trustees are appointed by one of six industry bodies or by the trustees themselves. While each of the appointing industry bodies can be taken to represent the interests of consumers of farm plastics, and potentially the wider community, it is not clear the appointment process is "*open and transparent*". MfE may be entirely comfortable that, on the basis each appointor (except Environment Waikato) is an incorporated society with a democratically elected board, Agrecovery's trustees are appointed through an "*open and transparent*" process. We recommend this point is raised with MfE and addressed before a formal application for accreditation is made.

24. Item 5(1)b.i. requires that services are procured using transparent, non-discriminatory, and competitive processes open to all competent entities whether existing, new entrant, or social enterprise. The Report does not set out a specific procedure for procuring services for each of the PSSs. We recommend that a formal procurement procedure be formulated.

25. Item 5(1)b.ii. requires clear, regular and open reporting and communication with PSS participants and stakeholders. The Report contemplates Agrecovery establishing effective communication channels with all stakeholders and participants, including the establishment of a consolidated stakeholder database. We recommend full particulars of those channels be provided in Agrecovery's formal application for accreditation.

26. Item 5(1)b.iii. requires processes to appropriately manage commercially confidential or sensitive information. The Report does not describe how it will manage confidential or commercially sensitive information. We recommend that Agrecovery's application for accreditation include (or reference) a confidential information policy that all PSS participants will be contractually bound by, whether through individual agreements or otherwise.

27. Item 5(1)b.iv. requires all people involved in the PSS to have completed suitable training to complete their roles, including in best practice in the prevention and reduction of harm to people and the environment. The Report does not describe how people involved in each PSS will be trained, how participants' competency will be assessed, or how participants will be vetted. While Agrecovery will obviously ensure that any participants in the PSSs are

competent and appropriately qualified to provide the relevant services, we recommend Agrecovery's formal application for accreditation explain how these requirements are met.

28. Item 5(1)b.v. requires the PSS to be able to obtain or have permits for all necessary activities in New Zealand in relation to processing and potential export of priority products or their constituent components. The Report contemplates that treated farm plastics may be exported, whether for recycling or disposal. As described **below**, exports of plastic waste may require permits. Agrecovery's formal application for accreditation will need to identify any necessary permits and confirm that they have been or will be obtained.

29. Item 5(1)c. requires the PSS to set and report annually to MfE on certain targets and review and adjust those targets at least every three years from the date of accreditation. Those targets include metrics like PSS performance, best practice collection and recycling or treatment rates, and public awareness of PSS participant satisfaction. While the Report does explain how the proposed PSSs are intended to reduce farm plastic waste and increase farm plastic recycling, it does not clearly address the target metrics listed in item 5(1)c. We recommend Agrecovery's formal application for accreditation expressly raise and address those target metrics and provide for them to reviewed at least every three years.

New Zealand's International Obligations

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

30. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal provides for each party to, among other things, reduce the generation and transboundary movement of certain hazardous wastes.

31. From what we have read, there is nothing to suggest the PSSs contemplated in the Report would involve the transboundary movement of hazardous wastes as defined in this Convention. Nevertheless, we recommend Agrecovery confirm this and raise and address the point in its formal application for accreditation.

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

32. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade provides for each party to, among other things, ban and limit the movement of certain severely hazardous chemicals and pesticides.

33. The relevant local restrictions are contained in the New Zealand Imports and Exports (Restrictions) Prohibition Order (No 2) (**Order**). Clause 11 of the Order provides that a person can only export "*plastic waste*" if the Environmental Protection Agency (**EPA**) has granted the person a permit authorising the exportation of the plastic waste. Agrecovery will need to ensure that PSS participants that are exporting plastic waste are properly authorised by the EPA to do so. We recommend the relevant permits are identified, raised, and addressed in Agrecovery's formal application for accreditation.

Stockholm Convention on Persistent Organic Pollutants

34. The Stockholm Convention on Persistent Organic Pollutants provides for each party to, among other things, prohibit the production, use, importing, and exporting of certain chemicals.

35. From what we have read, there is nothing to suggest the PSSs contemplated in the Report would involve the types of chemicals in this Convention. Nevertheless, we recommend Agrecovery confirm this and raise and address the point in its formal application for accreditation.

Other Compliance Obligations

36. As the manager of each PSS, Agrecovery is responsible for ensuring each PSS complies with applicable enactments, regulations, and bylaws. Agrecovery's focus will be directed towards environmental legislation like the Resource Management Act 1991 (**RMA**) and the Hazardous Substances and New Organisms Act 1996 (**HSNOA**). The PSSs will of course also need to comply with other statutes, including for example the Commerce Act.

Environmental Legislation

37. The RMA provides for the establishment of national environment standards, regional policy statements, and regional and district plans that control the use of land and other resources. We have not come across anything in the Summary or the relevant parts of the Report that suggest its PSSs would contravene the primary provisions in the RMA. Agrecovery will need to ensure that its PSS participants, in particular those operating collection sites and recovery hubs, comply with any consent requirements under relevant regional and district plans.

38. We have not encountered anything in the Summary or the Report that indicates the PSSs directly deal with any "*hazardous substance*" or "*new organism*" as those terms and defined in the HSNOA. It is however possible that farm plastics could contain hazardous substances or that their treatment involves the use of hazardous substances. Agrecovery will need to ensure that its PSSs comply with the requirements in the HSNOA.

39. We also recommend that Agrecovery's formal application for accreditation explain how it complies with, or why it is not required to comply with, the Ozone Layer Protection Act 1996 and the Climate Change Response Act 2002.

Commerce Act

40. The Commerce Act prohibits arrangements that substantially lessen competition, cartel conduct, and inappropriately taking advantage of market power. Cartel conduct means price fixing, restricting output, and market allocating. PSSs necessarily involve arrangements and collaboration between competitors and are therefore at risk of breaching the Commerce Act if not set up and managed appropriately.

41. There is nothing in the Summary or the relevant parts of the Report that suggest to us the proposed PSSs would contravene the anti-competitive behaviour laws in the Commerce Act.

However, we have not been provided with the specific terms of any agreements Agrecovery proposes to enter into with producers, users, collectors, or recyclers, so we cannot provide advice on whether those agreements would breach the Commerce Act. Agrecovery will need to ensure that any arrangements made for the PSSs comply with the Commerce Act.

42. In particular, Agrecovery will need to ensure that PSS participants (producers) do not make any arrangements about how they will absorb the cost of levies. For example, an arrangement to increase prices to cover levies would likely amount to price fixing.

43. Further, the PSSs should not include any arrangements that participants will not deal with a particular third party, as such arrangements may risk substantially lessening competition. For example, using membership criteria for a PSS that is more restrictive than necessary could have the effect of substantially lessening competition in an affected market.

44. It is of course open to Agrecovery and PSS participants to apply to the Commerce Commission under the Commerce Act for clearance to engage in collaborative activity.

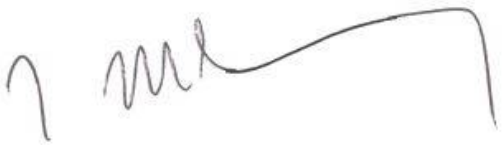
45. There will of course be other statutes, regulations, and bylaws that the PSSs will need to comply with, for example the Fair Trading Act 1986, the Health and Safety at Work Act 2015, and the Privacy Act 2020.

Concluding Remarks

46. We trust the **above** advice is sufficient for present purposes. If there is anything you would like us to expand upon, please let us know.

47. The advice in this letter is provided on the basis of the documents provided to us. Since the PSSs are not yet in place, we cannot comment on them directly. Neither can we certify Agrecovery's compliance with the documentation produced and provided.

Yours sincerely



Tom Mahony/Mitchell Souness
Principal/Solicitor

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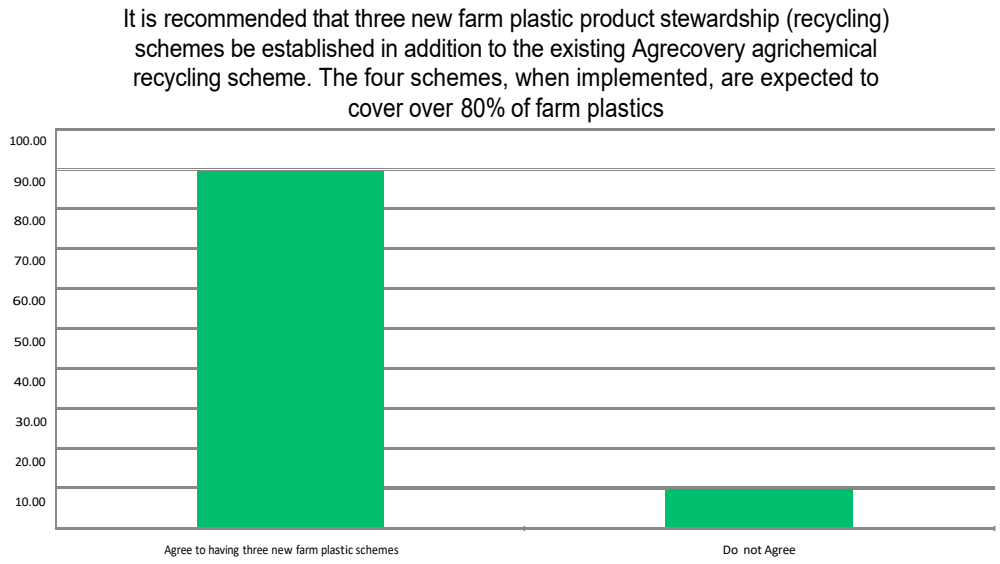
Mob: 029 454 4005
Email: tom.mahony@mhlaw.co.nz

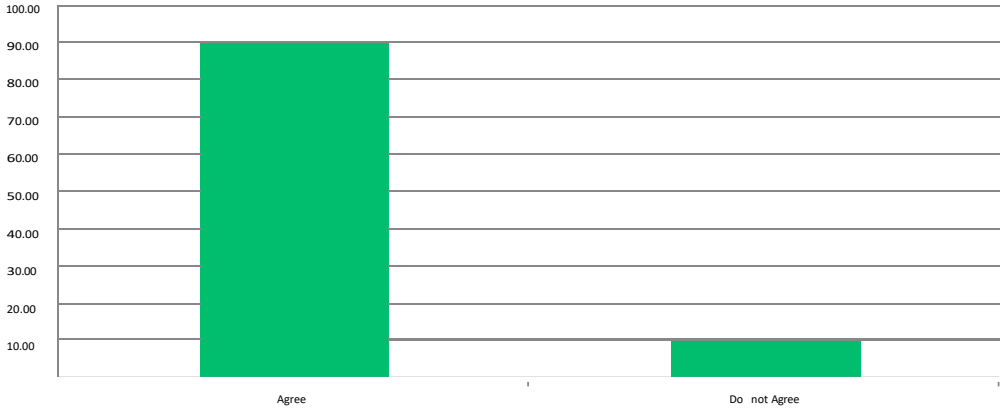
Appendix J

Final Design Elements Stakeholder Survey Findings, 17 August 2021

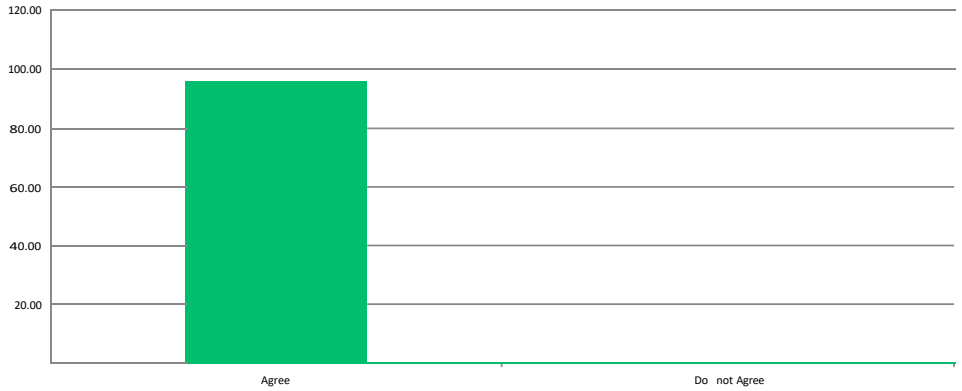
- In 2020, Agrecovery was funded by the Ministry for Environment (MfE) to design and implement effective and sustainable product stewardship schemes for other farm plastic waste under the Waste Minimisation Act 200 in addition to the Agrecovery voluntary scheme for agri-chemicals which has been operating since 2007.
- Aim to significantly reduce farm plastics from being burnt, buried, stockpiled or sent to landfill by the farmer, grower or farm contractor.
- To adhere to the MfE s gazetted priority products and process guidelines for the development of implementation farm plastics recycling schemes
- After significant stakeholder and potential scheme participant feedback, Agrecovery has proposed the development and implementation of three new farm plastics recycling schemes
- Two surveys were also conducted to seek the perceptions of farmers and growers (in January 2021) and wider stakeholders to the proposed scheme designs (in July 2021).



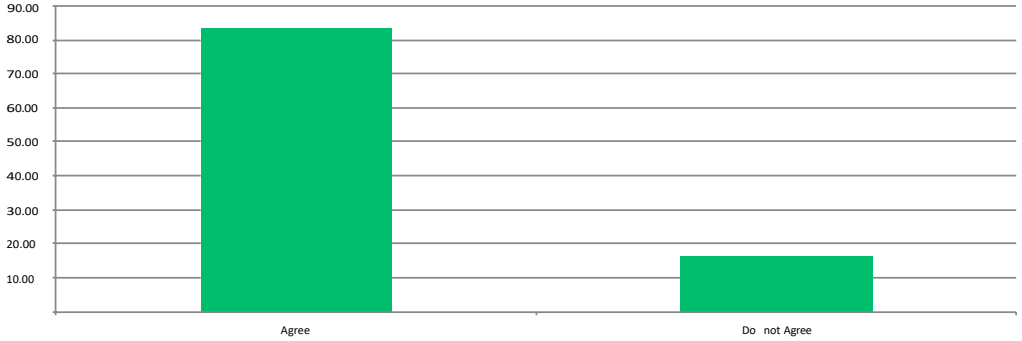
It is recommended that Agrecovery outsources, preferably to a local transport organisation, all four farm plastic collection functions on a regional basis. It is intended that at least eight regional contracts be entered into.



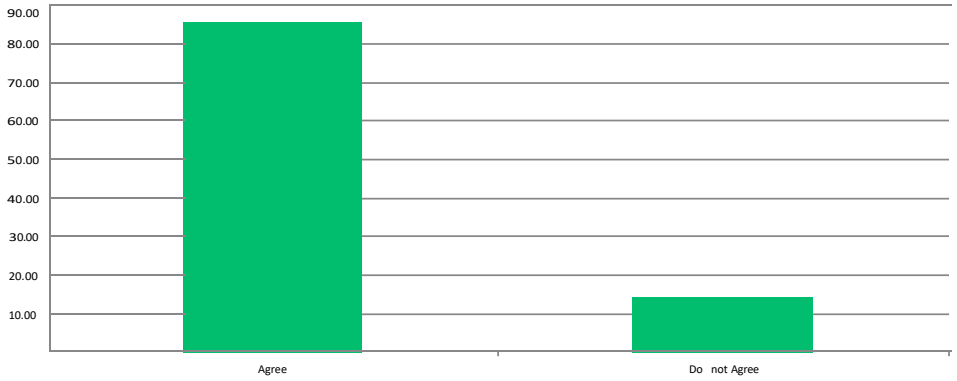
It is recommended that approximately eight farm plastics recovery hub sites are strategically located across New Zealand. The recovery hubs are where the farm plastic will be collated from the drop off locations or farms. The hubs are where the farm plastic will be collated from the drop-off locations or farms.



Overseas good practice suggests that the end of life cost of treatment, recovery and safe disposal of waste put into the market is the responsibility of the distributors of these products. This applies to farm plastics. Put simply, those who create the waste have the responsibility to clean it up at the end of its useful life.



It is recommended that all scheme costs be funded through fees paid by the farm plastics distributors. aving farmers and growers bring their plastic to a nearby drop off or hub locations will significantly reduce the costs distributors have to pay.



Appendix K

Bale and Silage Wrap Reference Group Meeting

By Zoom

Monday 14 June 2021

10:00am – 11:00am

To register for the Zoom meeting please click here:
https://us02web.zoom.us/meeting/register/tZYtcuigrTMiGNXUDQXtIl9McptEu27f2abL

Invitees:

- Lydia Dickinson (Independent Wrap), Tim Currie (Webbline), Andre Syben (Zeus Packaging), Mark Bunt and Glen Kolose (Integrated Packaging), Nathan Wycherley (ProAg), James Kesha (Pacrite)
- Chairperson: Richard Carroll (Agrecovery)

10:00am	• **Meeting start** • **Introduction and outline of meeting objectives**
10:10am	• Review data presented in PwC report, the current situation with the Farm Plastics Project, potential collection trials and options for recycling.
10:20am	• General discussion on how this sector operates to determine what a Product Stewardship Scheme for Bale and Silage Wrap would look like.
10:50am	• Next steps and timeframes
11:00am	• Meeting close

Appendix L

Farmer Reference Group meeting minutes, 2 November 2021

Farm Plastics Product Stewardship Scheme

Monday 2nd November 2020

12:00pm – 3:00pm

Rydges Hotel

Wellington Airport

Farmer Reference Group Meeting

12:00pm. Lunch

12:10pm. H & S. Evacuation procedures – Richard Carroll

12:15pm. Introductions and discovery session - understanding the background of the reference group members.

12:20pm. Back story for Agrecovery Farm Plastics Scheme, and One Stop Shop events – Richard Carroll

12:30pm. General Discussion:

- Shipping of Farm Plastics Internationally. Are they being recycled or burnt in the country of destination? In most District Council plans, burning or burying of plastic waste is permitted. Do we

need a change in regulations? Otherwise let's reduce our carbon footprint by not shipping, and just manage on farm – which will include burying and burning.

- There is cost to on-farm dumping. Tractor to dig a hole, staff to manage
- We need simplicity. Dairy farm and Horticulture staff are often very transit, so the system needs to be easy and simple.
- Plastic Wrap - When the box/liner is full (think like an apple crate that will fit on the back of a ute), there needs to be a system to dispose of it immediately. Farmers aren't prepared to wait for three months for it to be collected. It needs to suit the farmer not the recycler. A pick-up within a week, or the ability to drop off within a week would be suitable.
- There is a large knowledge gap for recycling schemes in general.
- What we do, we need to do well, as and the reputation of poorly run schemes spreads fast in the community, and farmers dis-engage.
- Size and logistics of the current silage wrap scheme are difficult to manage. How to manage a large, full and very heavy bag that needs to be moved to the collection site is problematic. A smaller crate option that is easy lift would suit.
- There is a cost benefit to recycling. The cost to build Land Transfer stations and dumping pits/cells are huge. District Councils should welcome any opportunity to prevent waste entering these Transfer Stations.
- Distance is an issue. A lot of farms are very remote and travelling distances to recycling areas can be large.
- Strongest advocate for change are Farmers recycling effectively. It is a large network system, so word of mouth and discussions raising issues of incorrect recycling practice. Often it is just lack of knowledge and how to solve the issue – how to contact, where to take the waste, costs.
- When purchasing chemicals, farmers and growers look for the Agrecovery logo so that they know the plastic can be recycled/removed from their farm.
- When there is access to a well-run system, people will engage and use the system. If there are roadblocks to manage recycling, there will be little uptake.
- There should be transparency to the system, that plastic is being recycled. We need a good recycling story that is good for our clean- green image – our international brand and promote this.
- Big stakeholders have a powerful voice. If they dictate that they do not want product arriving covered in plastic, the supplier will have to change their system.
- Sustainability schemes – Zespri are aiming to be carbon neutral and using only recycled plastics. If Fonterra came on board, this could solve a lot of issues.
- Should there be a service to clean dirty plastic wrap, i.e. silage/bale wrap? If farmers had to do this, it would not occur.

- Rather than wooden pellets, could we make plastic pellets from recycled plastics? If this came with an extra cost, would farmers be prepared to pay?
- Plastic fence posts have an advantage that you do not need insulators at a cost of 20 cents each.
- A not-for-profit scheme for plastic wrap would be ideal. Once the bulk wrap is collected or delivered to the recycling centre, that should be the end of the process for the farmer. The cost for recovery is built into the purchase price of the product.
- Making a massive dividend and then what to do how with this and how to distribute should not be an option – return the funds back into making the scheme better.
- The scheme should be transparent, and easy to understand the scheme process
- Look at what is occurring overseas, i.e packaging
- Registering for a specific time slot for One-Stop-Shop is problematic for farmers.
- Connect with https://farmstrong.co.nz/ – as part of a community connection when undertaking One-Stop-Shop events, i,e "Friday pie day", sausage sizzle, coffee cart.
- Vet Meds – suggest collections occur twice a year during peak seasons, such as May/June during drying off.
- Horticulture – Frost netting, shade cloth, etc for Apple, kiwifruit covering over the plants. It sits above the plants, so will remain clean and therefore easy to recycle.
- Do not reinvent the wheel. If there is already an accredited scheme, work with this.
- There should be one scheme, therefore one website, one phone number, one email. Having to register for two schemes (Agrecovery and Plasback) is off putting for farmers.
- A module that plugs into https://farmiq.co.nz/ and that fits into this system would make it easier for farmers. Farmers and Growers can then click the link and be sent to the recycling schemes websites – potentially already logged in, to arrange recycling.
- Most Farmers have a Farm Environment plan that recycling is part of.
- Look at a Code of Conduct for plastics bought into N.Z. Should it be Farmers/Growers responsibility to be the voice behind this. They have large leverage in this space.
- We should push manufacturers to produce product in the type of plastic that can be recycled easily.
- We need investment in recycling and plants.
- Keep communications active on the Agrecovery message – What we do and how we do it.
- Suggest that Market Research is undertaken to see what up take there is in Industry for recycling and the barriers to this. Why are people not recycling? A lot of lifestyle block owners do not seem to be aware of the recycling process.

Attendees:

- Simon Cook. (Hort NZ rep) Kiwifruit grower and a member of the NZ Kiwifruit Growers Inc.
- Anthony Heywood (Hort NZ rep) Senior Manager at Hort NZ
- Richard Reynolds. Fed Farmers Member, Greymouth District
- Peter Matich. Fed Farmers rep. Senior Regional Policy Advisor for Fed farmers
- David-Lee James. Fed Farmers member. Arable - Cropping Sheep and Beef
- Mike Parker. Vice-chair Vegetables N.Z
- Chris Allen. On Board of Fed Farmers. Representing as a Farmer
- Tony Wilson. General Manager Agrecovery
- Richard Carroll. Commercial Manager. Agrecovery
- Melanie Murray. Administrator. Agrecovery

1. Farmer reference group meeting 1 i. Hold the meeting 1 ii. Discuss and agree on Terms of References and Scope of Work for the group	Product farmer reference group meeting 1 i. Copy of the minutes of farmer reference group meeting 1. The minutes will include a summary of key discussion points and idea tested at the meeting, summary of the feedback from the stakeholders and agreed actions from the meeting. ii. Copy of the signed Terms of reference and scope of work

12:00pm	Lunch
12:30pm – 1:00pm	• Introductions and discovery session (understanding the background of the reference group)
1:00pm -1.30pm	• An update on the Farm Plastics Project • Global developments and good practice • Current schemes handling farm plastics 'One Stop Shop' events • Potential issues to be confronted/addressed • A review of current Ministry guidelines for regulated product stewardship schemes.
1:30pm – 3:00pm	General discussion on potential scheme options: • What are the critical elements for a scheme? • Pick up from farm, or drop-off at an event? • That's more important – cost or convenience? • Do different plastics need to be managed separately? • What do we need to know do design an optimum scheme?
	NB: your contributions will be noted but will not be attributable to any attendee
3:00pm	**Meeting close**

Appendix M

Product Stewardship Advisory Group Members – Meeting 15 December 2021

PSAG meeting 15th December 2021 Attendee's list
Name
Allanah Kidd
Angela Atkins
Antony Heywood
Chad Gillespie
Chris Dawson
Cole Burmester
Dana Peterson
David Lindsay
Glen Kolose
Hamish McMurdo
James Kesha
Jason Weller
Leon Currie
Mark Bunt
Neal Shaw
Poppy Hardie
Richard Carroll
Sally Fraser
Sarah Pritchett
Thomas Chin
Tim Bishell
Tim Currie
Tina Field
Tony Wilson
Wayne Plummer

Appendix N

Legal review of the Basel Convention – Mahony Horner Lawyers

Mahony Horner Lawyers

8 July 2022

The Agrecovery Foundation
Level 7, 111 The Terrace
Wellington Central
WELLINGTON 6011

For: Richard Carroll
By email: richard.carroll@agrecovery.org.nz

Dear Richard

COMMENTARY ON THE BASEL CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL

1. Thank you for asking us to provide further commentary on the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (**Convention**), and in particular on how it applies to the export of plastic waste for recycling and disposal. We have reviewed the Convention and related documents and set out some comments on the key issues for The Agrecovery Foundation's (**Agrecovery**) Green-farms Product Stewardship Scheme (**GPSS**) **below**.

2. Since the GPSS deals with farm plastics, we have focussed our review of the Convention and related documents towards the treatment of plastic waste and not other types of wastes.

3. Further, in the interests of time and cost, we have not reviewed the domestic legislation of any other countries. Similarly, there are also some areas that we have deliberately not explored further because to do so would involve considerable time and cost. However, we do identify these areas in case you would like us to investigate them further.

Executive Summary

4. The Convention exists to limit and sometimes prohibit the transboundary movements of hazardous and other wastes. Recent additions to the Convention clarify how and when it applies to plastic waste. New Zealand's obligations under the Convention have been ratified in the Imports and Exports (Restrictions) Act 1988 (**Restrictions Act**) and the associated Imports and Exports (Restrictions) Prohibition Order (No 2) 2004 (**Restrictions Order**).

5. It is possible that some plastics that the GPSS will recover for recycling are captured by the definitions of "*hazardous waste*" or "*other wastes*" in the Convention. However, if those plastics contain only certain polymers, are destined for recycling in an environmentally sound manner, and are almost free from contamination and other wastes, they will fall outside the scope of the Convention (and the Restrictions Order).

6. That said, plastic waste captured by the Convention can still be moved across boundaries for appropriate recycling, provided the exporting state does not have the technical capacity to recycle it in an environmentally sound and efficient manner (discussed **below**) and the prior informed consent procedure in the Convention is followed (also discussed **below**).

7. To export plastic waste that is covered by the Convention for recycling or disposal, Agrecovery (or its contractors) must hold a permit from the Environmental Protection Authority (**EPA**) to do so. Plastic waste that is not covered by the Convention, the Restrictions Order, or the importing state's domestic legislation can be exported for recycling without a permit from the EPA.

8. In addition to our commentary on the Convention, we make several recommendations about what Agrecovery should do to address the Convention as it relates to the GPSS.

Scope of the Convention

Hazardous Wastes

9. The Convention applies to "*hazardous wastes*" and "*other wastes*". Wastes are "*hazardous wastes*" for the purposes of the Convention if they:

    a. belong to a category in Annex I (**controlled waste**) and possess one or more of the characteristics set out in Annex III (**hazardous characteristic**);

    b. are defined as or considered to be hazardous by the domestic legislation of the party exporting, importing, or transiting the wastes; or

    c. are declared to be hazardous wastes in Annex VIII (added on 1 January 2021).

10. Relevant examples of controlled wastes include waste pharmaceuticals, drugs, and medicines, wastes from the production, formulation, or use of biocides or phytopharmaceuticals, and residues from industrial waste disposal operations. Relevant examples of hazardous characteristics include flammability, poisonousness, corrosion, toxicity, and ecotoxicity.

11. From a brief review it is not clear that plastic waste, on its own, is defined as or considered to be hazardous by New Zealand legislation. We explore this point further in respect of New Zealand's import and export restrictions legislation **below**.

12. We do not have information on the countries that Agrecovery (or its contractors) export (or intend to export) plastic waste to, and so cannot and do not comment on other countries' domestic legislation. If Agrecovery is particularly concerned about this point, please let us know. We would recommend liaising with lawyers in the relevant importing country.

13. Plastic waste (including mixtures of plastic waste) containing or contaminated with controlled wastes to the extent that it exhibits a hazardous characteristic, is declared to be hazardous waste by item A3210 of Annex VIII. Conversely, item B3011 of Annex IX provides that plastic waste is not hazardous waste if it:

    a. consists almost exclusively of one non-halogenated polymer, including polyethylene (**PE**) or polypropylene (**PP**);

    b. is destined for recycling in an environmentally sound manner; and

    c. is almost free from contamination and other types of wastes.

14. Item B3011 of Annex IX also provides that mixtures of plastic waste consisting of PE, PP, and/or polyethylene terephthalate (**PET**) are not hazardous waste for the purpose of the Convention if they are to be recycled separately, in an environmentally sound manner, and are almost free from contamination and other types of wastes.

15. We elaborate on the concepts of "*almost exclusively*", "*recycling*", "*environmentally sound manner*", and "*almost free from contamination and other types of wastes*" **below**.

Other Wastes

16. Wastes are "*other wastes*" for the purposes of the Convention if they belong to a category in Annex II (wastes requiring special consideration). In the present context, the relevant category of "*other wastes*" is Y48, which includes plastic wastes and mixtures of such wastes, unless they:

    a. consist almost exclusively of only one non-halogenated polymer (including PE or PP) or are mixtures of plastic waste consisting of PE, PP, and/or PET;

    b. are destined for recycling in an environmentally sound manner; and

    c. are almost free from contamination and other types of wastes.

17. As mentioned **above**, we elaborate on these concepts **below**.

Green-farms Product Stewardship Scheme

18. The GPSS is the product of Agrecovery's Farm Plastics Project Report (**Report**) to the Ministry for the Environment (**MfE**). Agrecovery and MfE intend for the GPSS to be an accredited and regulated (mandatory) product stewardship scheme for the collection and treatment of farm plastics throughout New Zealand.

19. We understand the GPSS will apply to:

    a. agrichemicals and their containers (by incorporating Agrecovery's existing Agrichemicals product stewardship scheme); and

b. farm plastics, meaning bale wrap and silage sheets, large sacks and bags (grain and fertiliser), and small sacks and bags (seed, feed, and fertiliser).

20. The relevant plastics (polymers) are therefore high-density PE (**HDPE**) (agrichemical containers), low-density PE (**LDPE**) (bale wrap and silage sheets), and PP or mixed plastics (large and small sacks and bags) (**Scheme Plastics**). If there are any relevant plastics or polymers that we have missed, please let us know as it may affect our commentary.

21. While the intention is that all Scheme Plastics will be able to be recycled by 2024, the GPSS proposal document notes it is clear there is insufficient recycling capacity within New Zealand to process current plastics collections, let alone further plastics collected under the GPSS. Accordingly, excess plastics collected must be exported for recycling or disposal.

Summary

22. Scheme Plastics exported for recycling or disposal will be captured by the Convention if they:

a. are contaminated with controlled wastes to the extent they exhibit a hazardous characteristic;

b. are defined as, or considered to be, hazardous by the domestic legislation of the party exporting, importing, or transiting the waste;

c. are declared to be hazardous waste in Annex VIII; or

d. are not:

i. excepted from the definition of "*hazardous wastes*" by Annex IX; or

ii. excepted from the definition of "*other wastes*" in Annex II.

Hazardous Waste

23. As explained **above**, there are three categories of hazardous wastes that are captured by the Convention. Uncontaminated plastic waste is not a controlled waste under Annex I of the Convention, so does not fall within the first category. Further, as explained **above**, plastic waste on its own is not clearly defined as, or deemed to be, hazardous waste under New Zealand legislation. Therefore, the relevant categories of "*hazardous wastes*" for the purposes of this commentary are wastes that are declared to be hazardous wastes in Annex VIII and wastes that are declared not to be hazardous wastes in Annex IX.

24. We understand that Scheme Plastics collected under the GPSS will be cleaned and treated before they are recycled (or, if necessary, disposed of). Even so, section 9 of the Report states that Scheme Plastics exported for recycling (or disposal) could be contaminated with:

a. residual feed, mud, grass, effluent (bale wrap and silage sheets);

b. residual fertiliser or grain (small and large sacks and bags);

c. agrichemicals (agrichemical containers); or

d. other agricultural materials (all plastics).

25. Scheme Plastics that are contaminated with controlled wastes to the extent that they exhibit hazardous characteristics will be "*hazardous wastes*" for the purposes of the Convention. Our expectation is that residual agrichemicals (insecticides, fungicides, herbicides, veterinary medicines, etc) found in agrichemical containers (and potentially other Scheme Plastics) could be controlled wastes (biocides) that exhibit hazardous characteristics (poisonousness, toxicity, or ecotoxicity). Agrecovery will need to confirm this.

26. It is therefore possible that some of the Scheme Plastics that the GPSS will deal with and potentially export for recycling or disposal (particularly agrichemical containers) will be considered "*hazardous wastes*" under the Convention, unless they fall within the exception in item B3011 of Annex IV discussed **below**.

Almost Exclusively

27. The first criteria for the exception in item B3011 of Annex IV is that the plastic waste consists "*almost exclusively*" of one non-halogenated polymer (including PE or PP). It is not clear from the text of the Convention what "*almost exclusively*" consisting of one non-halogenated polymer means. Further, the relevant footnote only states that "*international and national specifications may offer a point of reference*".

28. New Zealand's Restrictions Order simply restates the "*almost exclusively*" phrasing and does not provide any further guidance as to what "*almost exclusively*" means. Similarly, the EPA's guidance documents on plastic waste just repeat the phrase without elaboration. Despite our efforts, we have not been able to locate any useful international guidance on what "*almost exclusively*" means in this context.

29. In our view, in this context "*almost exclusively*" consisting of one non-halogenated polymer would most likely mean containing only negligible quantities of other materials. With the exception of sacks and bags that can contain mixed plastics, we understand the Scheme Plastics consist "*almost exclusively*" of polyethylene or polypropylene. Agrecovery will need to confirm that is the case.

Destined For Recycling in an Environmentally Sound Manner

30. The next criteria for the exception in item B3011 of Annex IV is that the plastic waste is "*destined for recycling in an environmentally sound manner*". What constitutes "*recycling*" is clear from the relevant footnote:

> *Recycling/reclamation of organic substances that are not used as solvents (R3 in Annex IV, sect. B) or, if needed, temporary storage limited to one instance, provided that it is followed by operation R3 and evidenced by contractual or relevant official documentation.*

31. Notably, the use of plastic waste as fuel or other means of storing energy is not "*recycling*" for the purposes of the exception in item B3011 of Annex IV.

32. What constitutes an "*environmentally sound manner*" is not defined in the Convention, however paragraph 8 of article 2 states that:

> *"*environmentally sound management of hazardous wastes or other wastes*" means taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes.*

33. Again, New Zealand's Restrictions Order simply repeats the phrase "*environmentally sound manner*" and does not provide any guidance as to what that means. Helpfully, the Convention parties have developed several guidance documents on "*environmentally sound management*", including the following:

a. Technical Guidelines for the Identification and Environmentally Sound Management of Plastic Wastes and for their Disposal (**Guidelines**).[1] The Guidelines focus on the technical aspects of managing plastic wastes, with particular emphasis on their recycling. The Guidelines were issued in 2002 and are currently being reviewed.

b. A Framework for the Environmentally Sound Management of Hazardous Wastes and Other Wastes (**Framework**).[2] Among other things, the Framework establishes a common understanding of "*environmentally sound management*" that includes the elements and components of "*environmentally sound management*".

c. An Environmentally Sound Management Toolkit (**Toolkit**).[3] The Toolkit is an online selection of guidance documents on specific aspects of "*environmentally sound management*".

34. We have not reviewed these documents in full as they contain considerable technical material that is beyond our expertise. While they relate to the concept of "*environmentally sound management*" rather than "*environmentally sound manner*", they are the documents that the Convention Secretariat refers to. We therefore consider they are directly relevant to determining what constitutes an "*environmentally sound manner*" in this context.

35. We recommend Agrecovery review these guidance documents to help determine whether the Scheme Plastics potentially exported for recycling or disposal is destined for recycling in an environmentally sound manner. Alternatively, it may be appropriate for Agrecovery to approach the EPA about what constitutes "*recycling in an environmentally sound manner*".

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1 http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW-WAST-GUID-PlasticWastes.English.pdf

2 http://www.basel.int/Portals/4/Download.aspx?d=UNEP-CHW.11-3-Add.1-Rev.1.English.pdf

3 http://www.basel.int/Implementation/CountryLedInitiative/EnvironmentallySoundManagement/ESMToolkit/Overview/tabid/5839/Default.aspx

Almost Free from Contamination and Other Types of Wastes

36. The last criteria for the exemption in item B3011 of Annex IV is that the plastic waste is "*almost free from contamination and other types of wastes*". Much like "*almost exclusively*", the text of the Convention provides no guidance on this phrase and the relevant footnote simply refers to international and national specifications as potentially providing a point of reference.

37. Once again, New Zealand's Restrictions Order simply repeats the phrase "*almost free from contamination and other types of waste*" without providing any guidance on what it means. The scant international guidance that we have reviewed is also not particularly helpful, although there are several indications that the Convention parties will be working on more guidance on the interpretation of this and other phrases that determine whether or not certain plastics are subject to the Convention.

38. In our view, in this context "*almost free from contamination and other types of wastes*" is likely to mean containing only negligible quantities of contaminants and other types of wastes. As **above**, it may be appropriate for Agrecovery to approach the EPA about what constitutes "*almost free from contamination and other types of wastes*".

Mixtures of Plastic Waste

39. In addition to plastic wastes that satisfy the three criteria described **above**, mixtures of plastic waste consisting of PE, PP, and/or PET that are destined for "*separate*" recycling in an environmentally sound manner and are almost free from contamination and other types of waste are excepted from being "*hazardous wastes*" by item B3011 of Annex IX.

40. As mentioned **above**, we understand that some of the sacks and bags that are Scheme Plastics contain a mixture of LDPE and PP. Provided the different types of plastics in those sacks and bags can be separated and recycled separately, they should fit within the exception in item B3011 of Annex IX, provided they meet the other two criteria.

Other Wastes

41. As explained **above**, plastic waste is "*other waste*" for the purposes of the Convention in accordance with item Y48 of Annex II, unless it meets the same criteria for exception as set out in paragraphs 27 to 40 **above**.

42. Accordingly, Scheme Plastics that are not contaminated with controlled wastes to the extent that they exhibit a hazardous characteristic, but are contaminated with other materials such that they are not "*almost free from contamination and other types of wastes*" will be "*other wastes*" for the purposes of the Convention.

Summary of Hazardous Wastes and Other Wastes

43. Scheme Plastics that are contaminated with a controlled waste to the extent that they exhibit a hazardous characteristic are captured under and regulated by the Convention as "*hazardous waste*". Scheme Plastics that are contaminated with other materials are captured under and regulated by the Convention as "*other waste*".

44. However, Scheme Plastics that:

    a. consist almost exclusively of only one non-halogenated polymer (including PE or PP) or that are mixtures of plastic waste consisting of PE, PP, and/or PET;

    b. are destined for recycling in an environmentally sound manner; and

    c. are almost free from contaminants and other types of wastes:

    are not captured by the Convention.

45. Accordingly, we recommend Agrecovery undertake a comprehensive review of the Scheme Plastics, the extent of potential contaminants, and the relevant overseas recycling procedures to determine whether the Scheme Plastics are captured by the Convention.

Effect of the Convention

46. The Convention's general effect is to prohibit the import and export of hazardous wastes and other wastes to and from Convention parties and other countries that have prohibited the import or export of those wastes. Importantly, the Convention prohibits parties that are OECD and European Commission states from exporting hazardous waste to states that are not part of the OECD or the European Commission for recycling or disposal.

47. Further, the Convention requires each party to, among other things:

    a. take appropriate measures to ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes;

    b. not allow the export of hazardous wastes or other wastes to party states that belong to an economic or political integration organisation (particularly developing countries) if they have prohibited all imports or if it has reason to believe the wastes will not be managed in an environmentally sound manner;

    c. require that hazardous wastes or other wastes to be exported are managed in an environmentally sound manner in the state of import or elsewhere;

    d. take appropriate measures to ensure that the transboundary movement of hazardous wastes and other wastes will only be allowed if the state of export does not have the technical capacity and the necessary facilities, capacity, or suitable

disposal sites in order to dispose of the wastes in question in an environmentally sound and efficient manner; and

e. prohibit all persons under their national jurisdiction from transporting or disposing of hazardous wastes or other wastes unless those persons are authorised or allows to perform such types of operations.

48. The Convention establishes a Prior Informed Consent (**PIC**) Procedure that involves:

a. notification;

b. consent and issuance of a movement document;

c. transboundary movement; and

d. confirmation of disposal.

49. The PIC Procedure is set out in article 6 of the Convention.

Status of the Convention

50. As an international treaty, the Convention is a multilateral agreement between party states that is binding on New Zealand as a state under international law. Since the Convention is binding on New Zealand as a state, the relevant obligor under the Convention is the New Zealand Government, rather than its citizens, residents, or occupants.

51. Accordingly, in order to apply to New Zealand's citizens, residents, and occupants, the Convention needs to be ratified by domestic legislation in New Zealand. New Zealand has achieved this through the Restrictions Act and Restrictions Order discussed further **below**.

52. Importantly, section 15 of the Waste Minimisation Act 2008 (**WMA**) states that the Minster for the Environment must accredit a product stewardship scheme if they are satisfied that it is, among other things, consistent with New Zealand's international obligations. Those obligations include New Zealand's obligations under Convention.

53. Further, MfE's guidance on applying for accreditation of a product stewardship scheme require an application to provide details and supporting evidence of how the scheme meets any relevant international obligations (ie the Convention).

54. Accordingly, Agrecovery must consider and explain how the Convention applies to the GPSS' activities as part of the product stewardship scheme accreditation process. We recommend that Agrecovery include an analysis of how the Convention does or does not apply to the GPSS when Agrecovery applies for the GPSS to be accredited.

Imports and Exports (Restrictions) Act and Regulations

55. As mentioned **above**, New Zealand has codified its obligations under the Convention in the Imports and Exports (Restrictions) Act 1988 and associated Imports and Exports (Restrictions) Prohibition Order (No 2) 2004. The Restrictions Act controls the import and export of certain goods into and out of New Zealand, giving domestic effect to New Zealand's obligations under several international treaties, including the Convention.

56. Generally, the Restrictions Act empowers the Governor-General to issue Orders in Council prohibiting or permitting (on certain conditions) the importation and exportation of certain goods. It is therefore the Restrictions Order that sets out the substance of New Zealand's prohibitions and conditions on the importation and exportation of certain goods.

57. Clause 6 of the Order prohibits the exportation of plastic waste, except as provided in clause 11. Clause 11 provides that a person may export plastic waste from New Zealand if the EPA grants the person a permit authorising the exportation of the waste. The EPA must grant a permit for exportation if certain requirements are met, including that:

    a. New Zealand does not have the technical capacity and the necessary facilities, capacity, or suitable disposal sites to dispose of the waste in an environmentally sound and efficient manner; and

    b. waste can be disposed of or managed in an environmentally sound and efficient manner in the state that is importing the waste.

58. Much like the Convention, the Restrictions Order defines "*plastic waste*" as any plastic waste (including mixtures of plastic waste), but it does not include plastic waste that:

    a. consists almost exclusively of one non-halogenated polymer (including PE and PP);

    b. is to be recycled in an environmentally sound manner; and

    c. is almost free from contamination and other types of waste.

59. Accordingly, plastic waste that meets those three criteria, falls outside the scope of the Restrictions Order in the same way it falls outside of the scope of the Convention.

60. As identified **above**, we recommend Agrecovery undertake a comprehensive review of the Scheme Plastics, potential contaminants, and the relevant overseas recycling procedures.

61. As mentioned in our legal review of the Report dated 20 December 2021, we recommend that Agrecovery identifies the permits required to operate the GPSS as intended and confirm that these have been or will be obtained by the time the GPSS is implemented.

Summary of Recommendations

62. We recommend that Agrecovery:

    a. reviews the Guidelines, Framework, and Toolkit to help determine what constitutes an "*environmentally sound manner*" in the context of plastic recycling;

    b. reviews the Scheme Plastics, potential contaminants, and the relevant overseas recycling procedures and in particular review and confirm the extent to which agrichemical containers exported for recycling are potentially contaminated with controlled wastes to the extent they exhibit hazardous characteristics;

    c. includes an analysis of how the Convention does or does not apply to the GPSS when Agrecovery applies for the GPSS to be accredited; and

    d. identifies the permits required to operate the GPSS as intended and confirm that these have been or will be obtained by the time the GPSS is implemented.

Conclusion

63. Whether the Scheme Plastics are captured by the Convention (and related domestic legislation) depends on:

    a. the type or types of plastic they contain;

    b. whether, and to what extent, they are contaminated with hazardous or other substances;

    c. where they are being exported to; and

    d. how they are to be recycled.

64. Scheme Plastics that are captured by the Convention must be dealt with in accordance with the Convention and, more specifically, the Restrictions Act and Restrictions Order. We do not have sufficient information or technical expertise to determine whether or not the Scheme Plastics are captured by the Convention, however the commentary set out in this letter should be sufficient for Agrecovery to undertake that analysis.

65. Even if the Scheme Plastics are captured by the Convention, they can still be exported for recycling if New Zealand does not have the technical capacity to recycle it in an environmentally sound and efficient manner and the PIC Procedure in the Convention is followed.

66. Accordingly, we have recommended several steps for Agrecovery to take in light of the Convention's potential application to the Scheme Plastics and therefore the GPSS.

67. We appreciate the commentary contained in this letter is lengthy and relatively technical, however we consider the content is necessary to provide Agrecovery with information and guidance about the subject matter that it will find useful. We would welcome the opportunity to discuss our commentary and the Convention with you further.

Yours sincerely

Tom Mahony/Mitchell Souness
Principal/Senior Solicitor

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