2022 Annual Report

AGRICULTURAL RECYCLING OF THE FUTURE

cleanfarms

Agricultural Industry Contributing to Cleaner Farms in Canada

The programs Cleanfarms proudly documents in this 2022 annual report have been made possible through the ongoing stewardship and funding support of our members comprising more than 85 manufacturers, distributors and retailers in the crop protection products, fertilizer, seed, livestock/equine medications, and ag plastics industries.

CLEANFARMS MEMBERS

cleanfarms

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PROMOTING AGRICULTURAL SUSTAINABILITY

Who We Are

Cleanfarms is a non-profit industry stewardship organization committed to environmental responsibility through the proper management of used agricultural plastics and other packaging. Cleanfarms' programs are available across Canada and have been emulated internationally. The success of these programs highlights the commitment of manufacturers, distributors, retailers, municipalities, provinces and farmers/producers to agricultural environmental responsibility and sustainability.

Vision

Cleanfarms contributes to a healthier environment and a sustainable future by recovering and recycling agricultural and related industry plastics, packaging and products.

Cover: Pilot programs assess use of compactors to compress loose plastic hay bale wrap and silage bags into bales. Photo shows Davin Johnson, Cleanfarms' Lethbridge-based Alberta Program Advisor, loading the compactor.

Chair's and Executive Director's Report

If we used one word to describe our perception of 2022, it would be 'grateful'.

Emerging from the worst of the pandemic, the Cleanfarms team looked for new opportunities to recommit to our goal of zero agricultural plastic waste going to landfill in Canada.

Despite the pandemic's grip on the Canadian economy, Cleanfarms endeavoured to maintain our services to the agricultural community. As you read the highlights in this 2022 annual report, you will see that thanks to the network of partners, agricultural plastic and other collection programs continued to operate effectively. In fact, we gained ground. We are grateful to all those in the value chain who contributed to the achievement, starting with farmers/producers.

Through regular dialogue with farmers from coast to coast about their routines and opinions, we learn what works and what doesn't work. That information helps to shape the programs that collect and recycle used agricultural plastics, and that manage a range of other important agricultural tools for safe disposal.

We will never rest in the quest to improve current programs and to create new ones that enable us to expand the types of used agricultural materials collected. We are serious when we say our goal is to reduce the amount of plastic waste going to landfill. And we are serious in our efforts to deliver programs that help protect the environment. That is why the 2022 results are so encouraging.

Farmers returned more small and large containers for recycling. They surpassed the amounts of unwanted pesticides and old, obsolete livestock and equine health

medications recovered compared to the previous collection year. They participated enthusiastically in pilot projects testing new methods of managing other types of agricultural materials.

Pilot projects are vital to expanding the range of materials recovered in Cleanfarms programs. They enable Cleanfarms to make recommendations about how and when to transition from pilot projects to permanent programs. To highlight their relevance, a selection of pilots is profiled in this report.

All Cleanfarms programs benefit from the support and collaboration of a wide range of people and organizations. Among them are industry members many of whom participate voluntarily; farmers who in growing numbers manage on-farm waste by taking part in Cleanfarms programs; municipalities which provide support; contractors who deliver essential services; partners that collaborate with Cleanfarms to push the envelope on what can be recovered and repurposed in a circular economy; and agricultural retailers who are integral to our operations and without whom these programs would not exist.

Thank you to everyone who helps make it possible to envision a Canada without agricultural plastic waste going to landfill. We are grateful that we are on this journey together.

Photo : On left is Barry Friesen. On right is Boyd Bergstrom.

Barry Friesen
Executive Director

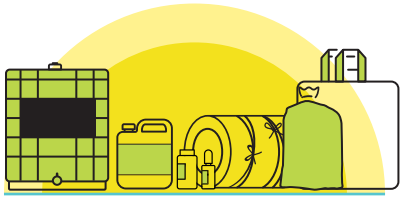
Boyd Bergstrom
Nufarm Agriculture Inc.
Chair
Board of Directors

2022 Year in Review

Cleanfarms continues to evolve as a major driver of the Canadian circular economy for agricultural plastics. Through its commitment to developing programs that recover ag plastics for recycling, Cleanfarms makes available to farmers/producers options that contribute to the sustainability of farm operations.

2022 was a year defined by the advancement of ag plastics diversion through pilot projects that lead to a deeper understanding of participation behaviour, attitudes, collection options, transportation logistics and end market viability.

Through a proven strategy of testing, assessing and revising, and with the support of key partners, Cleanfarms' pilot projects point the way toward permanent programs and zero plastic waste for agriculture.



BY THE NUMBERS

2022 Materials Collected Since Inception (rounded)

149 million units
Plastic Containers (23L and smaller) for Pesticides and Fertilizers

392,000 units
Non-refillable Bulk Pesticide & Fertilizer Drums/Totes

3,000 tonnes*
Seed and Pesticide Bags

4,200 tonnes
Unwanted, Old Pesticides

67.3 tonnes
Old, Obsolete Livestock/ Equine Medications

12,700 tonnes
Grain Bags, Agricultural Film and Baler Twine Plastic

342 tonnes
Maple Sap Tubing

* Includes fertilizer bags which are collected in Quebec and inoculant bags that are included in the Prairie pilot and throughout Eastern Canada

Cleanfarms 2022 Board of Directors

Group photo: left to right:
Calvin Mazurenko, Berry Global; Barry Friesen *(seated)*, Cleanfarms Inc.; Pierre Petelle, CropLife Canada; Trish Jordan, Bayer Cropscience Canada; Loralee Orr, Corteva Agriscience™; Mike Schooten, Tama Canada; Boyd Bergstrom *(seated)*, Nufarm Agriculture Inc.; Terry McMillan, Richardson International Limited









Individual photos: left to right:
Brad Orr*, Corteva Agriscience™; Chris Wilson, Huvepharma Canada Corporation Inc.; Fernando Olea, Syngenta Canada Inc.; Howie Kroon, Bodtker Group (Reliance Products Limited Partnership); Lana Zdunich, BASF Canada; Mei Chung-Lewis, Interprovincial Cooperative Limited (IPCO); Paul Lake*, Bio Agri Mix; Phil Bailey, Secan; Stephane Perreault, Sollio Agriculture

*resigned in 2022

Program Operations Highlights

2022 can be celebrated as a year when core Cleanfarms programs such as those for small and large pesticide and fertilizer containers and grain bags matured. Recovery numbers continue to show that many farmers/producers have adopted recovery for recycling as part of their routine to manage these materials once no longer useful on the farm.

2022 is also the year of the pilot project. With the help of partners such as the "MELCCFP" with its 'Zero Ag Plastics in Agriculture' project and the MRCs (Regional County Municipalities) in Quebec, Agricultural Plastics Recycling Group of Alberta under the 'Alberta Ag Plastic. *Recycle It!'* initiative, Dairy Farmers of Canada under their 'Here for Tomorrow' campaign, and the Government of Canada through the Agriculture and Agri-Food Canada's Canadian Agricultural Strategic Priorities Program (CASPP), Cleanfarms has staged demonstration pilot projects that hold promise to keep even more ag plastics out of landfill sites and reinvested in the circular economy.

- Thanks to farmers/producers, collection of materials recovered in core programs once again set new standards of recovery volumes in 2022.
- Across the country, pilot programs collected bale wrap which is used by farmers across Canada to conserve hay for livestock feed. A major component of the bale wrap pilots involved testing compactors to compress loose plastic into manageable bales that can be stored and transported more easily.
- Plastic baler twine is also used to secure hay bales. In 2022, it was collected through a permanent program in Manitoba and in pilots in British Columbia, Alberta, Saskatchewan, Ontario, Quebec and Prince Edward Island.
- Grain bags were collected as part of permanent programs in Saskatchewan and Manitoba, and in pilots in British Columbia and Alberta.
- The collection of seed, pesticide and inoculant bags, long managed for safe disposal as a part of the permanent program in Eastern Canada, was pilot tested in Western Canada through 2022 in preparation to transition to a permanent program in 2023.

***Note:** Quebec will transition to a permanent, regulated program in 2023.*

Small Agricultural Plastic Container Recycling

PESTICIDE AND FERTILIZER CONTAINERS 23L AND SMALLER

Every year, farmers/producers across Canada return empty small agricultural pesticide and fertilizer containers by the millions so they can be recycled and repurposed in the circular economy. Over the past three decades, the number of jugs returned each year has been growing steadily. 2022 was among the highest since the program began, exceeded only in 2018 and 2021.

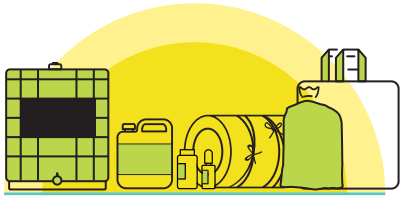
Collection in 2021 was above normal due to a backlog of containers that had accumulated because pickup in 2020 was delayed due to the pandemic.

So, kudos to growers who continue to return empty pesticide and fertilizer containers 23L and smaller in even greater volumes.

Of particular note, in Alberta and Manitoba, 2022 was the first year of a three-year shift in collection sites for small containers from municipal depots to ag retailers. In the inaugural year, more than one-third of retailers participated as new collection sites for containers, opening up easy-to-access drop-off locations for growers.

BY THE NUMBERS — 2022

5.6M
(by units, rounded)
Small Containers Collected for Recycling
(23L and smaller)



By Province (by units, rounded)

104,000
British Columbia

597,000
Quebec

1,170,000
Alberta

84,000
Prince Edward Island

1,956,000
Saskatchewan

38,000
New Brunswick

379,000
Manitoba

26,000
Nova Scotia

1,272,000
Ontario

5,625,000
TOTAL UNITS (rounded)

Non-Deposit Bulk Container Recycling

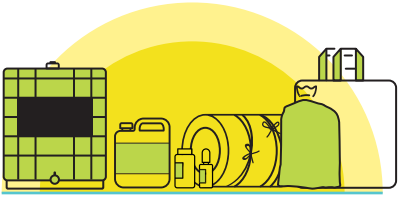
FOR LIQUID PESTICIDES AND FERTILIZERS (23L TO 1000L)

A growing number of empty pesticide and fertilizer non-deposit bulk drums and totes are being returned after use.

When empty, these non-deposit 23L to 1000L containers can be recycled, which helps keep farms clean and protects the environment.

The materials, plastic and metal, are repurposed to make new products, many of them used in agricultural operations. 2022 saw yet another increase in return for recycling by 4% to more than 74,100 containers. This program continues to be a Cleanfarms success story, with the numbers steadily climbing year over year since the program began in 2015.

BY THE NUMBERS — 2022



Non-Deposit Bulk Pesticide and Fertilizer Containers Collected for Recycling – 23L to 1000L

(by units, rounded)

74,100
Totes and Drums
Up 4% over 2021

By Province (by units, rounded)

300
British Columbia

5,200
Ontario

27,000
Alberta

1,000
Quebec

36,400
Saskatchewan

600
Maritimes

3,600
Manitoba

74,100
TOTAL UNITS (rounded)
Up from 71,000 in 2021

Unwanted Pesticides and Old Livestock/Equine Medications Collection Program

Every fall, in several regions of Canada, Cleanfarms operates collection events that accept unwanted pesticides and old, obsolete livestock and equine medications.

Operating on a rotating basis, these events return to regions every three years. Cleanfarms partnered with the Canadian Animal Health Institute (CAHI), beginning in 2014, expanding the list of materials accepted.

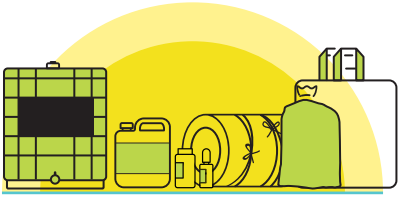
In 2022, the year began with two special collections in Abbotsford, British Columbia to support farmers who had been impacted by flooding during the previous fall.

Regular collection events took place in the Peace Region of British Columbia and Alberta, as well as in Northern Alberta, Manitoba, Ontario and Newfoundland. In all these regions, Cleanfarms saw high participation rates and significant increases in the volumes collected. In particular, collection events in Southwestern Ontario saw the highest volumes collected ever in that province. Overall, the total 2022 unwanted pesticide volume increased by 51% compared to the previous 2019 program held in the same regions. Ontario ag retailers are credited with making the collection events so successful by reaching out to their customers by phone, text, email and social media.

Further results indicated collection events were receiving less of the 'very old' pesticide products dating back to the 1960s and 1970s, and sometimes older. This suggests that those stockpiles have been collected in past years. The overall total old livestock and equine medication volume climbed by 75% compared to the previous collections in 2019.

Through responses in exit surveys, Cleanfarms estimated that about half of those who brought old, obsolete materials had participated in the collection program in the past and the other half were attending for the first time.

The materials collected each year are carefully managed for safe disposal.



BY THE NUMBERS — 2022

Unwanted Pesticides Collected (rounded)

6,300 kg
British Columbia – Peace Region

27,500 kg
Alberta – Peace Region

52,300 kg
Alberta – North

52,400 kg
Manitoba

183,100 kg
Ontario

1,900 kg
Newfoundland

323,500 kg
TOTAL PESTICIDES COLLECTED (rounded)

Old Obsolete Livestock/ Equine Medications Collected (rounded)

400 kg
Alberta – Peace Region

1,700 kg
Alberta North

1,500 kg
Manitoba

6,000 kg
Ontario

100 kg
Newfoundland

9,700 kg
TOTAL OLD OBSOLETE LIVESTOCK/EQUINE MEDICATIONS COLLECTED (rounded)

Saskatchewan's Provincially Regulated Grain Bag Recycling Program

The story of agriculture in any given year can be written with a reference to the weather map, and in 2022, farmers/producers in Saskatchewan did not need much extra storage for cereal grains at harvest time. Reduced harvest in 2021 resulted in fewer grain bags purchased in 2022; however, the number of grain bags recycled measured against those purchased in 2022 remained constant at 64% returned for recycling.

Saskatchewan's grain bag recycling program started in 2018 as Canada's first provincially regulated, industry-funded agricultural film recycling program. It gained momentum quickly.

Cleanfarms developed and operates this ag recycling program on behalf of grain bag first sellers (companies that supply grain bags into Saskatchewan), which are obligated to take operational and funding responsibility for the program under 'The Agricultural Packaging Product Waste Stewardship Regulation' (2016). To help cover collection and transportation costs to end markets, a non-refundable Environmental Handling Fee (EHF) is applied at the time of purchase. The fees collected for this program are dedicated solely to supporting grain bag recycling in Saskatchewan.

BALER TWINE PILOT

2022 was the second year of a three-year pilot project in parts of Saskatchewan that encouraged ranchers and mixed farming operations to recycle used baler twine plastic by taking it to one of more than 30 grain bag recycling collection sites. The intention of the pilot is to gather information on collection and transportation to inform development of broader programs that will eventually be available coast to coast.

BY THE NUMBERS — 2022

881 tonnes

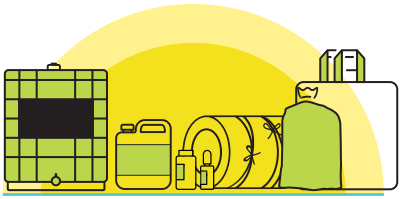
Grain Bags Collected in Saskatchewan (rounded)
Compared to 2,110 tonnes collected in 2021

Manitoba's New Provincially Regulated Grain Bag and Twine Recycling Program

2022 marked the first full year of Manitoba's provincially regulated grain bag and twine collection program. This program allows industry to meet its regulatory obligations via Cleanfarms and helps Manitoba farmers recycle single-use, plastic grain bags and baler twine.

Government-funded pilots for ag plastics including grain bags and baler twine have been available since 2013. At the request of Manitoba Environment and Climate, Cleanfarms began exploring ways to transition the financial responsibility for these services from public funding to industry and the program officially launched in 2021. An environmental handling fee (EHF) is applied at the time of purchase of grain bags and baler twine which helps to cover the cost of collection, transportation and recycling.

Thirty-six collection sites for grain bags and baler twine were available at year end. Cleanfarms is working one-on-one with collection sites to increase farmers' awareness and participation and is also establishing a network across the Prairies to develop economies of scale to efficiently manage ag plastics collected in Manitoba.



BY THE NUMBERS — 2022

29,100 kg
Grain Bags and Baler Twine
(rounded)

Quebec Agricultural Plastics Recycling Permanent and Pilot Programs

Quebec farmers have a long history of managing agricultural plastics and crop input packaging when no longer needed, through recycling and safe disposal practices. These measures help them fulfill their environmental stewardship objectives, conserve landfill space and contribute to a vibrant circular economy in the province.

Through the permanent programs, farmers have opportunities to recycle containers 23L and smaller and drums and totes from 23L to 1000L.

In addition, long-existing programs enable them to safely dispose of empty seed, pesticide and fertilizer (SPF) bags and unwanted pesticides and old, obsolete livestock and equine medications.

In 2022, small container recycling in Quebec increased by 26% over 2021 numbers. The return of non-deposit bulk containers swung back from lower numbers in the two previous years to realize an increase of 31% over 2021.

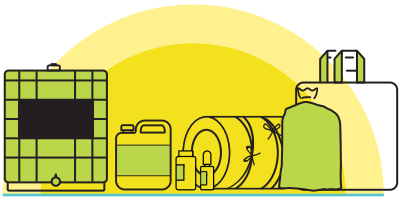
The return of seed, pesticide and fertilizer (SPF) bags remained about the same with a slight decrease of 2% in overall volumes in 2022. However, over the peak summer months, the number of empty SPF bags returned for safe disposal spiked by 60% through June to August, compared to 2021 numbers.

QUEBEC PILOTS

The most comprehensive ag plastic recycling pilot in Canada is underway in Quebec. Now in its fourth year, it enables farmers to manage bale wrap, silage bags, bunker covers, baler twine, netting and maple tubing for recycling. 2022 focused on improving logistics for product transportation and on expanding the pilot throughout the province, now reaching 63 MRCs (Regional County Municipalities) involving more than 300 individual municipalities. These activities were aimed at establishing a solid foundation for the transition to permanent programs in the summer of 2023 when the province's ag plastics collection and recycling regulation is enacted.

Cleanfarms realized that the successful operation of ag plastic collection is dependent on an efficient and convenient method of managing loose bale wrap and silage bags generated on farms. Compressing the used plastic into bales makes storage and transportation more efficient. With that goal in mind, by 2022 Cleanfarms had distributed more than 130 compactors to farmers throughout Quebec. Many farmers are also interested in building their own compactors.

Another recycling pilot initiative for Cleanfarms that achieved a foothold in 2022 brought the collection of maple syrup tubing within reach of farmers in numerous new regions. As additional maple tubing collection sites joined the program, return rates increased significantly, demonstrating that the program was much needed by maple syrup producers and has been embraced enthusiastically.



BY THE NUMBERS — 2022

574,000 kg
Bale Wrap, Tarps and Silage Bags and Twine (rounded)
Up 110% over 2021

290,000 kg
Maple Sap Tubing (rounded)
Up 457% over 2021

864,000 kg
TOTAL collection (rounded)
Up 270% over 2021

Seed, Pesticide and Inoculant Bags Permanent and Pilot Collection Programs

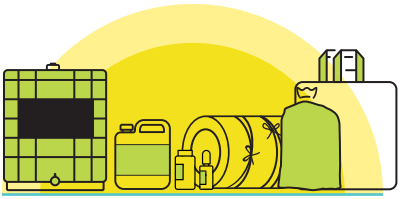
Seed, pesticide, inoculant and fertilizer are vital crop inputs in agriculture, and the plastic and paper bags they're packaged in are necessary tools to deliver them to farm operations. But when empty, the bags can be hard to manage for responsible disposal. Cleanfarms has long offered a solution for farmers in the east, but farmers in Western Canada had little choice but to landfill or manage them behind the farm gate. That changed at the end of 2022 as Cleanfarms transitioned a three-year pilot spanning Manitoba, Saskatchewan and Alberta into a permanent program.

Depending on the region, farmers in the Maritimes, Quebec and Ontario have been taking empty bags to collection locations for up to 15 years.

Cleanfarms transports most of the smaller bags to energy-from-waste facilities for safe disposal. In many cases, larger bags are recycled to make new plastic products like lumber wrap. Those not recycled are also converted to alternative energy sources.

In Quebec, in 2022, collection volumes for seed, pesticide, inoculant and fertilizer bags were largely on par with 2021. Results from Ontario and most Atlantic provinces showed a dip with the exception of New Brunswick which closed with a slight increase over 2021.

The picture in Western Canada, as the pilot completed its final year before shifting to a permanent program, showed the promise of what's to come in managing bags. By expanding the program to the Prairies, Cleanfarms gives growers access to a broader range of opportunities for responsible management of non-organic ag waste. The pilot provided valuable information about the quantity of empty bags available and how best to manage them for collection and transportation.



BY THE NUMBERS — 2022

553,800 kg
Seed, Pesticide, Inoculant and Fertilizer* Bags Collected (rounded)

By Province (rounded)

15,600 kg
Alberta

310,700 kg
Quebec

79,000 kg
Saskatchewan

8,600 kg
Prince Edward Island

11,200 kg
Manitoba

1,400 kg
New Brunswick

127,000 kg
Ontario

300 kg
Nova Scotia

*In 2022, fertilizer bags were accepted exclusively in Quebec.

"That's where we are at."

Over two years ago, Cleanfarms contacted Éric Lemieux, Senior Director, Ag Operations at Avantis Coopérative. Cleanfarms was seeking his participation in a pilot project to recover flexible plastics. At that time, Éric admits he was concerned that it would be too time consuming, even though Avantis had been participating in the ongoing pesticide containers collection permanent program for some 20 years. Éric says: "We agreed anyway because we feel a deep sense of duty regarding the protection of our agricultural heritage. As well, we want to meet the high environmental expectations of the next generation."

Part of the large Sollio network, Avantis Coopérative counts some 3,000 producers-members. Over the past two years, Avantis has installed collection sites for agricultural plastics near five of his BMR renovation and agricultural products centres in the Chaudière-Appalaches region, south of Quebec City.

All farmers in the area are invited to drop off their plastic bunker covers, bale wrap and grain bags. When the collection sites are almost full, Avantis notifies Cleanfarms who then arranges for the materials to be transported to a recycler.

| Éric Lemieux

The experience of the last two years leads the head of Avantis to tip his hat to the producers. The traffic at the sites and the volume of plastics brought back exceed all his expectations. As for his initial worries, they did not materialize: "Selecting and setting up the collection sites requires little time and energy. Once that's done, it's self-sustaining." Looking back, Eric Lemieux admits that he is glad he didn't turn down Cleanfarms' initial invitation.

The pilot project in which Avantis is involved could become a permanent program under Quebec's Extended Producer Responsibility (EPR) policy. As a company that markets agricultural plastics and other products included in the EPR, Avantis is subject to these regulations. Lemieux says that: "Avantis welcomes this responsibility toward the future." He concludes: "It's normal. That's where we are at."

Building a Zero-Plastic-Waste Strategy for Agriculture

Developing practical options for farmers to manage the agricultural plastics that are important in their farm operations requires vision, flexibility and a long-term commitment. The only way to test and adjust ideas is to deploy on-the-ground pilot projects designed to assess participation and attitudes, material quality, logistics such as storage on-farm and at collection sites, transportation logistics and end market opportunities. Pilots in British Columbia, Alberta, Saskatchewan, Ontario and Prince Edward Island demonstrate "proof of concept", and when successful, they are stepping stones to the goal of building toward zero plastic-waste for agriculture in Canada.

As part of its 'Building a Zero-Plastic-Waste Strategy for Agriculture' project, Cleanfarms has numerous multi-year pilots underway.

Ranchers and mixed farming operations are using collection bags to recycle used baler twine plastic. Collection bags also can be helpful for farmers who use smaller quantities of bale wrap or who are accustomed to bag-based systems.

Compactors that compress loose, cut bale wrap and silage bags or bunker covers (ag film plastics) into a manageable square bale enable farmers to store and transport the used plastic to Cleanfarms collection sites more efficiently. Farmers in

Bruce County, Ontario, Alberta and British Columbia are testing different types of compactors and advancing efficiencies by recommending modifications.

Multi-year pilots give Cleanfarms the flexibility to test alternatives, assessing what works best and what doesn't... and transferring the knowledge from one jurisdiction to another.

This project is funded in part by the Government of Canada through Agriculture and Agri-Food Canada's Canadian Agricultural Strategic Priorities Program (CASPP), which is a $50.3 million, five-year investment to help the agricultural sector adapt and remain competitive.

BY THE NUMBERS — 2022

Pilots Diverted (rounded)

127,000 kg

Ag film plastic, twine, and grain bags from all regions

Alberta Beef Farmer Was Waiting for a Recycling Pilot for Twine

Assar Grinde

If there's one thing Assar Grinde is likely to say about recycling used baler twine in the **'Alberta Ag-Plastic. *Recycle It!'*** pilot, it's how easy it is to incorporate into his daily routine.

"I'm bale grazing my cattle," he says, "so I cut a lot of twine off hay bales. Instead of putting the twine into a garbage bag and taking it to the landfill, I shake it out and stuff it into a Cleanfarms recycling bag. It is very easy to recycle most of my twine."

Assar owns and operates a cow/calf backgrounding operation near Rimbey, Alberta. His cows have calves in May and he keeps them through the next winter, feeding them silage and bale grazing his cows. Winter feeding in Alberta is typically six months, and as a result, he ends up with a lot of twine and silage plastic. Strenuously opposed to landfilling or burning the agricultural plastic, he stockpiled it on his farm waiting for a recycling program to start.

He was happy when the multi-stakeholder Agricultural Plastic Recycling Group (APRG) initiated a pilot program and hired Cleanfarms, "the expert in ag recycling across the country," to get it underway. He is an enthusiastic ambassador for the pilot, encouraging the recycling of both grain bags and twine.

What surprises Assar is how slowly some of his colleagues in the beef industry in Alberta are to try recycling twine.

He says: "Some farmers are reluctant to start because they think they have to be perfect recyclers. They don't. Any plastic they recycle is an improvement." Likewise, the twine doesn't have to be completely free of hay and snow. Giving it a good shake out is good enough, he notes.

Assar sees this pilot as the first step toward broader plastic recycling programs for farmers/producers everywhere. He'd like to see more recycling pilots get underway in Alberta for additional materials like silage plastic and net wrap.

"I'm very hopeful for this program," he says.

The pilot project is led by the multi-stakeholder Agricultural Plastics Recycling Group (APRG). Funds were granted by the Government of Alberta and are administered by Alberta Beef Producers. Assar Grinde is a member of APRG and a past director with Alberta Beef Producers.

*Read about the '*Alberta Ag-Plastic. *Recycle It!' pilot on the next page.*

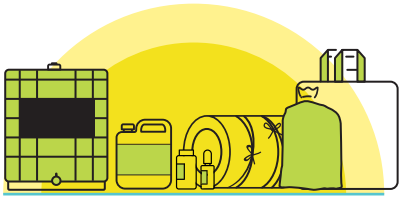
ALBERTA AG-PLASTIC RECYCLE IT!

Alberta Ag-Plastic. *Recycle It!* – Pilot

In its third year of operation in 2022, the 'Alberta Ag-Plastic. *Recycle It!*' pilot program gives Alberta farmers an opportunity to recycle grain bags and baler twine. Cleanfarms operates the pilot on behalf of the Agricultural Plastics Recycling Group (APRG), which oversees the project. Funds to administer and manage the pilot are provided by the Government of Alberta, administered by Alberta Beef Producers.

The pilot was originally set to conclude in spring 2022, however, to ensure farmers and ranchers have access to these vital recycling programs, APRG, with provincial funding, extended the pilot to August 2023. APRG's long-term goal of the pilot is to transition it to a permanent program in the future.

2022 recycling numbers were not as robust as in 2021. As with other regions on the Prairies, this is attributed to less of these materials being used because of drought circumstances.



BY THE NUMBERS – 2022

Alberta Ag-Plastic. *Recycle It!* Pilot
(rounded)

477 tonnes
Grain Bags Collected

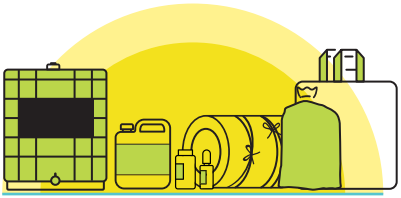
119 tonnes
Baler Twine Collected

Dairy Farmers of Canada Support Ag Plastic Film Recycling

Dairy Farmers of Canada (DFC) is always looking for innovative ways to improve the sustainability in dairy production. This includes ensuring that the plastics used by farmers to help store feed (e.g., bale wrap, silage bags and bunker covers/tarps) are properly managed at end of life.

Farmers have a long legacy of progress when it comes to sustainability, but the partnership established between Cleanfarms and DFC through its 'Here for Tomorrow' campaign is equipping dairy farmers with new tools to help them recycle even more ag plastics such as:

- Testing various compactors that will facilitate efficient on-farm storage and transportation;
- Producing a 'best practices' video which demonstrates proper compactor use;
- Launching on-farm demonstrations to build awareness and facilitate knowledge transfer; and
- Enabling dairy farmers across Manitoba and in Kent District, British Columbia to recycle silage plastics.



BY THE NUMBERS — 2022

Pilots funded by DFC for bale wrap, silage bags and bunker covers

Approx. 60 tonnes

Fraser Valley Dairy Farmers Change Process to Secure End Market

Gerald Struys

At the start of their bale wrap recycling efforts in 2014, the dairy farmers of Kent District, Agassiz, in the Fraser Valley of British Columbia had a vision. They were intent on achieving a carbon reduction goal. But when their Vancouver-based end market for the used ag plastics suddenly dried up, they were left without an option beyond landfilling the material. Markets for used bale wrap were in early stages and finding a new one was next to impossible.

Intent on keeping the program going, the group members, including Gerald Struys, kept collecting and storing some bale wrap hoping they could find a new market. In 2020, Gerald agreed to take on responsibility for organizing bale wrap pick up from individual dairy farms. That led him to the BC Dairy Council asking if they could point them to a market. The council connected him with the Dairy Farmers of Canada (DFC) which introduced him to Cleanfarms. As it happened, DFC and Cleanfarms were exploring ways to allow more dairy farmers to get involved in ag plastics recycling to demonstrate how dedicated dairy farmers were to doing their part to protect the environment.

Cleanfarms asked Gerald if his group would consider testing ag film (e.g., bale wrap) compactors rather than using tote bags to store the materials. Gerald's willingness to lead the change was the first step toward a market solution.

"That first year, Cleanfarms shipped us two compactors and trained us on how to use them," Gerald says. That helped prepare the group for the next step. "We plan to distribute compactors to about 15 farms within a 20-mile radius of Agassiz and get them started baling the plastic."

Not only did Cleanfarms get ag plastic recycling back up and running again, Gerald says, they opened up a market that accepts the material. Under this Cleanfarms pilot program, farmers could also recycle bunker cover plastic and plastic twine.

It doesn't get any better, says Gerald. From here he sees a positive future for ag plastic recycling, adding, "Success would be a permanent program as normal for farmers as household recycling is now."

Assessing Ag Plastic Compactors Helping Environment, Farmer Says

Dirk de Boer

Dirk de Boer would breathe easier if more farmers in Bruce County, Ontario would recycle the used agricultural plastic they cut off hay bales instead of burning it. He has asthma and his health and that of his family is one reason why he has thought for years that there must be a better way of managing the agricultural plastic used around his farm.

So, when the opportunity came along to take a lead role in a Cleanfarms pilot project* to recover ag plastic for recycling rather than the more traditional practices of burning, burying or landfilling, he jumped on it.

Dirk operates a part dairy, part beef farm near Owen Sound in Southwestern Ontario. He puts about 400 acres into producing hay each year and bale grazes his herd. About one-third of his hay crop goes into plastic wrap and more goes into plastic silage bags.

He has taken on a leadership role in the Cleanfarms pilot in his region, along with other pilots across the country. The pilot aims to assess the use of a compactor to compress and bale the loose plastic. Dirk likes it so much that he's happy to spread the word about the pilot and help enlist other farmers to join in. He's also suggested changes to the compressor that he believes will make it even easier to use. Since he got his first compactor last summer, he's already made 13 or 14 bales of plastic. Cleanfarms picks up the bales and transports them to a recycler.

"Cleanfarms did a great job putting this pilot together," Dirk says. "They've made about a dozen compactors available to farmers in Bruce and they've cleared the biggest hurdle, finding an avenue to get the material recycled. We're definitely achieving our goals with this pilot."

Dirk is leading the charge in his region to expand the number of farmers who use the compactors. He believes farmers care about what happens to these materials, saying, "they're oil-based products that definitely should be reused."

His advice to other farmers is to "take a bit of time to recycle ag plastics, it has a very positive impact on the environment."

**This project is funded in part by the Government of Canada through Agriculture and Agri-Food Canada's Canadian Agricultural Strategic Priorities Program (CASPP), which has made a $50.3 million, five-year investment to help the agricultural sector adapt and remain competitive.*

Gaining Improvements in Sustainability

Improving the sustainability of the Cleanfarms operations continues to be a focal point in strategic planning and program development for agricultural packaging and plastic products. Cleanfarms made progress in 2022 mapping out metrics that place our program achievements in the context of reducing greenhouse gas emissions (GHG) and contributing to the circular economy.

The work revealed that while increasing the volumes and types of materials recovered is central to improvements, the most significant opportunities could lie in how materials are collected, processed and procured. To test theories, Cleanfarms:

- Added collection sites to reduce distances to locations to where materials are taken for recycling or safe management;
- Worked with collection and processing partners to measure impacts that effect GHG reduction;
- Assessed collection efficiency, such as testing compactor trucks;
- Addressed procurement by incorporating post-consumer recycled materials such as 25% recycled content in ag collection bags; and
- Established a program to reduce climate change impact for Cleanfarms offices and staff.

Cleanfarms thanks our partners in the ag industries for their support and encouragement in making these initiatives possible.

Based on 2022 recycling results for empty containers (23L and smaller and up to 1000L), we estimate a net carbon dioxide equivalent emissions saving of more than 4,000 tonnes, compared to landfilling this material. The savings result from replacement of virgin plastic resin with recycled plastic resin in new plastic products.

2022 CARBON DIOXIDE EMISSION REDUCTIONS RESULTING FROM RECYCLING EMPTY AGRICULTURAL CONTAINERS (ROUNDED)

930
cars off the road for one year

1,820,000 litres
of gasoline consumed

71,300 acres
of forest sequestering carbon for one year

162,000
tree seedlings grown for ten years

515
households' annual energy use emissions

Meet Carly Fraser

SPECIAL PROJECTS COORDINATOR

Thanks to her knack for building relationships and inspiring a spirit of collaboration and innovation in others, Carly Fraser is a true expert when it comes to managing Cleanfarms' many pilot projects across Canada.

Carly joined the Cleanfarms team in the fall of 2020 to lead the charge on the 'Building a Zero-Plastic-Waste Strategy for Agriculture' project, a federally funded program dedicated to exploring new opportunities for farmers to manage their ag plastics. With an education focused on understanding how humans interact with waste systems and plenty of experience working closely with farmers to improve community food systems, Carly was made for the role.

Carly Fraser

As a proponent of Cleanfarms' goal of transitioning pilot projects to permanent ag waste collection programs, Carly manages networks of farmers, collection sites, transporters, and processors coast to coast that test new ag plastic waste management options. Her work with the Building a Zero-Plastic-Waste Strategy for Agriculture project is community-oriented, forward-thinking and helps push Cleanfarms' programs to the forefront of ag plastic recycling.

The key to Carly's success is creating a personal connection with the people who participate in the pilot projects and are essential to their longevity. She explains how "a lot of what makes pilots work at the beginning stages is collaboration, trust building, and problem-solving." This philosophy has been demonstrated through Carly's work from the beginning, enabling many pilot projects to blossom.

Carly's passion for what she does reflects her long-term fascination with the intersection of waste and agriculture and her desire to positively impact the systems essential to the well-being of those around her. Whether it's her colleagues, farmers, project partners, or a neighbour, she knows the value of community and is committed to uplifting hers through her work with Cleanfarms.

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