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Alberta Plastics Recycling Association NEWS

www.recycleyourplastic.ca

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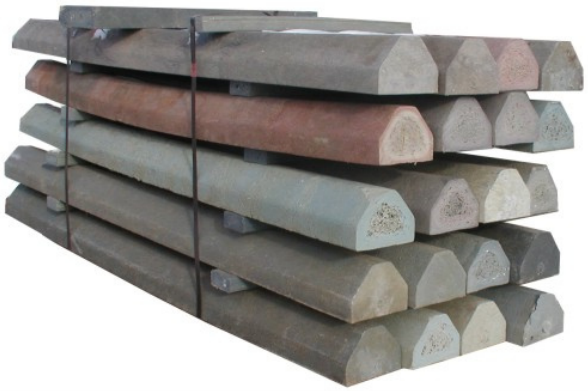
Despite downturn, recycling material still flowing

In December 2008, the Recycling Council of Alberta held a meeting to address the current dire market situation for recyclables. Invited stakeholders represented brokers/recyclers, municipalities and Alberta Environment.

The group delivered the following key messages:

- Keep recycling—
  - Markets will fluctuate;
  - Recycling is justified on an environmental and public policy basis.
- Material quality is critical to marketing.
- Despite the downturn, there are still markets and material is still flowing.
- There is a need to be patient and wait for markets to rebound.
- When the overall economy improves, so will recycling markets.
- We need to learn lessons from this situation, as future downturns will happen.
- Those recyclers with sound business plans will be fine.
- The overseas market dependence creates increased volatility. More local manufacturers using recycled feedstock would provide increased stability.
- Green procurement pulls material into the markets. If you're not buying recycled, how do you expect to sell recycled material?
- Stewardship can provide program stability.

For more information or if you have any suggestions or comments please contact the Recycling Council of Alberta at www.recycle.ab.ca.



An increase in the number of local manufacturers using recycled feedstock will provide increased market stability.

For a related story on turning waste plastic into valuable end products, such as plastic parking curbs, see page 2.

Highlights and accomplishments of the Alberta Plastics Recycling Association

The Alberta Plastics Recycling Association (APRA) is a member-driven waste plastics information resource and community out-reach service. While APRA is fully autonomous, we are active with the Recycling Council of Alberta and Northern Care and have a history of project experience with Alberta Environment and municipalities across Alberta. The following are some highlights of APRA's activities.

- APRA is a vital resource for municipalities entering or expanding their collection of plastics and much work will remain in this area until the majority of Alberta communities have full-spectrum plastics collection and share in regional marketing.

- Over time, APRA has worked with the Alberta Dairy Council, the Alberta Used Oil Management Association and others, targeting single-stream post-consumer plastic wastes.

- Pre- and post-industrial and commercial plastics recycling streams divert, by far, the greatest volumes of plastics from Alberta landfills. Because these waste plastics tend to be homogeneous and relatively free of contamination, they can be highly desirable feedstocks for processors. APRA continues to work with high volume generators of industrial plastic wastes to develop, whenever possible, lasting relationships between generators and processors.

- The emerging technologies of Waste to Energy are ever closer to deployment in Alberta. APRA works as a clearing-house for information on these initiatives.

- In 2009, we will begin working with others in a search for opportunities to divert waste plastics from the construction and demolition stream.

- On page 3 is an update on efforts to collect and process used high density polyethylene (HDPE) film and polypropylene (PP) twine from Alberta's agricultural wastes—far too much of which is still being burned with negative impacts on our air and soil.

- The establishment of a pilot project to collect and densify expanded polystyrene from cushion and food packaging is still a priority and 2009 looks promising for start-up.

Active since 1991, APRA's focus remains grounded on REDUCE, REUSE, RECYCLE and RECOVER.

Remaining engaged on these and other projects is a challenge for a not-for profit with limited resources. Progress has been made and will continue because the strength of APRA is found in the wide-ranging skills of our volunteers. The long-time involvement of our executive has given the association ready access to waste plastics processors, chemists, engineers, planners, waste managers and other professionals. Without their commitment, it would not be possible to respond to the many challenges of developing responsible solutions to waste plastics.

If you are encouraged by any or all of APRA's activities and would like to volunteer on the Board, or on any single project, your input is welcome.

To comment, or to become involved, please contact: Grant Cameron, APRA executive director, at 780-452-8611.

The challenges of turning waste plastic into valuable end products

by Grant R. Harrington

Turning waste plastic into a valuable end product is a daunting task. For the past number of years, Alternative Plastic Products Manufacturing Inc. has been taking post consumer plastic, such as jugs, bottles and pails, and granulating it into chip to be made into various end products. The end products, such as plastic lumber and fence posts, have been sold to firms as far away as Dubai.

Even though the waste plastic is readily available and inexpensive to acquire, the processing equipment is expensive and requires high maintenance. Expenses are such that the end product is higher priced than similar products made from wood.

In December 2007, Alternative Plastic Products Manufacturing Inc. moved its manufacturing equipment from Red Deer, Alberta to Medicine Hat, Alberta, and entered into a joint venture with New Life Recovery System. New Life Recovery System, operating out of Medicine Hat, had been chipping oil field waste plastic pipe for the past few years. Combining the two companies made both more viable in a volatile marketplace.

The combined companies now conduct business as New Life Recovery Systems and manufacture a variety of end products including floor boards for potato barns, garden railroad ties, insert beams, parking curbs, barrier fence posts and plastic lumber for benches and picnic tables.

What is now urgently needed to ensure the success of this joint venture is support from towns, cities and governments with respect to their procurement policies. An order for 1,000 barrier fence posts (6" x 6" x 72"), such as those used for parks and walkways, would use 29,000 kilograms (kg) (63,000 lbs.) of post consumer recycled plastic. A call for fence posts, the standard 4"x 84" used along every roadway in Alberta, to fence 800 kilometres of highway would use 532,000 kg (1,170,000 lbs.) of recycled plastic or 33,300 fence posts. This represents the total amount of post consumer waste plastic generated over one year by the cities of Lethbridge and Red Deer combined. These fence posts have a life span of over 100 years.

Imagine the post consumer plastic that will be collected from over one million Calgarians in the blue box program. It will probably be in excess of 5,000 metric tonnes or the equivalent of about 250 truck loads of densified plastic ready to go to markets. Does anyone know where this waste plastic is going, or what it will be made into? Does anyone care if it is processed in Alberta to make end products that can be used in our parks or along our highways and walkways?

Tackling the agricultural plastic dilemma

by Dave Whitfield and Christina Seidel

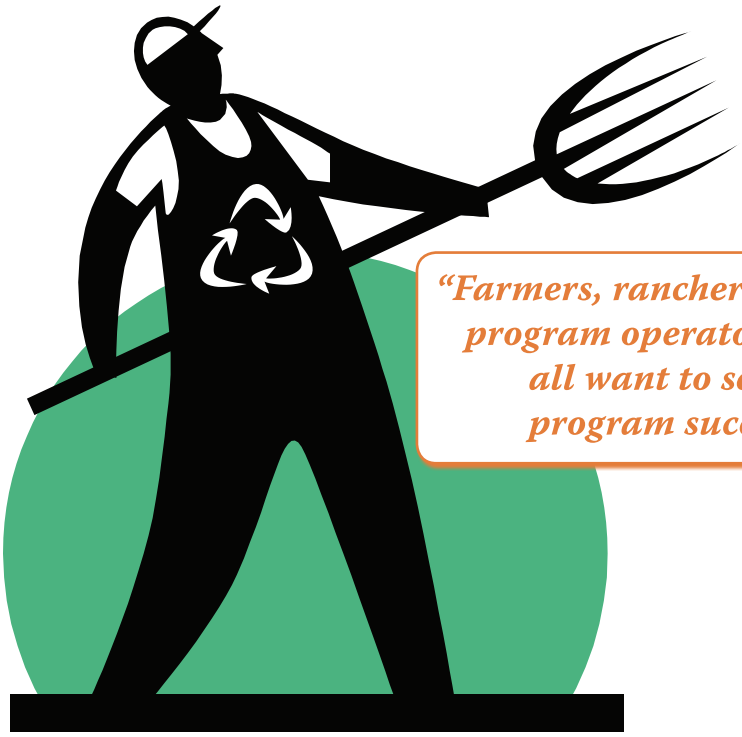
With no bona fide recovery program in place to capture used agricultural plastic material, a Canadian organization sets out to determine the feasibility of establishing such a system.

Plastic recyclers have long known about the untapped source of material generated by the agricultural sector, which, until recently, appeared too challenging to recover. At the same time, from the farmer's and rancher's perspective, such materials as baling twine, bale wrap, silage wrap, and various sizes of feed bags, are usually labelled as problematic wastes. In fact, many landfills will not accept agricultural plastics because of the handling challenges and potential risks the material poses to equipment.

Due to a lack of alternatives, these materials often end up being incinerated in a burn barrel or on a burn pile, and, from a health and environment perspective, such practices are downright unacceptable. Not only is it dangerous to directly inhale smoke generated from combustion, generally, particulates from the open burning of plastics will descend quickly to the ground—typically within 1,600 feet of the combustion source—contaminating the soil below. Potentially toxic constituents of these particulates, including dioxins and furans, accumulate in the soil, and bio-accumulate in fat, as they move up the food chain. As a result, the current management practices for waste ag plastics present both health and environmental concerns.

Addressing the issue

In 2007, the Recycling Council of Alberta (RCA) set out to determine if it was possible to develop a recycling program to manage the agricultural plastic waste stream. To achieve this, a working group was established, which includes representatives from the Alberta Plastics Recycling Association (APRA), the plastic manufacturing sector, retailers, recycling project operators, Alberta Agriculture, Alberta Environment and recycling processors. It also should be noted that, since the group's establishment, there's been some involvement with agencies in the Province of Saskatchewan, where similar issues exist within their agricultural sector. The working group has received input from recycling program operators and processors, and a picture is emerging of the nature of the material entering the market and its recycling potential.



"Farmers, ranchers and local program operators, alike, all want to see the program succeed."

The first task established by the working group was to gain understanding of the volumes of ag plastic waste generated within the province. Thanks to research primarily undertaken by APRA, with input from retailers of agricultural products, estimates of the amount of available material were developed. In 2007, the amount of polypropylene (PP) products (twine and cord) sold in Alberta was in the range of 6.5 to nine million pounds, while polyethylene (PE) material (sheet materials and silage bags) was estimated at 9.5 to 11.5 million pounds. Although not captured in the above numbers, PP also is used extensively in the manufacture of bulk bags, feed sacks and lumber wrap, while PE is used extensively in the horticultural industry. This volume continues to grow because of the introduction of additional products, such as large storage bags for grain. Based on these initial estimates, there's little question that volumes of waste agricultural plastics present a serious waste management issue, as well as a potential recycling opportunity.

The next hurdle for the working group was to assess the potential of collecting materials of sufficient quantity and quality, to warrant a full-fledged recycling program. As with any other commodity, sorting and contamination levels are key factors in the marketability of the material. Between plant matter, mud, manure, and just plain bulkiness, ag-based plastics present serious collection and handling issues. Data taken from progressive Albertan communities with existing collection programs for ag plastics, including Mountain View County, Brooks and the Municipal District of Rocky View, provided for a valuable starting point; however, additional information was needed from other areas of Alberta, where agricultural operations and climatic conditions differ. Thus, with the co-operation of the Evergreen Regional Waste Management Services Commission, as well as the concentrated feedlot region of Lethbridge, in partnership with the County of Lethbridge, additional trial programs were established in 2008.

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Tackling the agricultural plastic dilemma continued from p. 3

The results are in

Though the report on the recent trials is not complete, some preliminary observations were made available. For example, there is strong interest in the recovered plastics from both Canadian and U.S. firms looking to potentially include the material in the manufacture of new twines and bags (PP) and a range of consumer goods (PE). However, despite the inherent value of the material, cleanliness and separation by material type present concerns to most processors.

Some plastics reclaimers are investing in facilities with washing capability to specifically handle agricultural materials. This capacity to clean the material is very important, as all indications are that some degree of contamination will always be a factor. With that, preliminary results indicated a horizontal baler provides the best alternative for intermediate handling and preparation for shipping the material. It's interesting to note that some smaller balers and rollers (for long sheets of PE) are possible tools that also could be very helpful.

Local initiatives have demonstrated innovative approaches to improve participation. Examples of this included:

- Mountain View County offered $100 to the first 100 farmers to deliver at least 220 pounds of plastic. This promotion generated very strong participation the first day of the campaign, and served as an effective marketing tool in the community.

- The M.D. of Rocky View developed a clear PE bag that fit easily into a 55 U.S.-gallon drum, and was distributed to farmers to use in the collection of agricultural plastics. Stamped with instructions on how to prepare, store and deliver the materials, the bags provided the benefit of making the materials easily visible to collection site staff members. The bags were successfully utilized in the Lethbridge trial, as well.

The agricultural community is keen to participate; however, if a viable recycling program is to be created, strong education must be established to encourage cleanliness and sorting of materials. Education needs to be directed at daily management practices to collect, and store, clean, separated product, as materials left in the elements for any length of time become highly contaminated with foreign materials. This education process will take some time and effort, as existing behaviors will need to change.

Even with careful preparation and storage, waste agricultural plastics inevitably contain foreign materials, such as plant matter, dirt and manure. To make matters worse, this material is often frozen to the plastics over the winter months, making it virtually impossible to remove during collection. This level of contamination greatly reduces the demand for the material, as only a select group of processors have the equipment required to undertake the necessary cleaning.

Where to go from here

The trial programs have certainly shown that the demand for a recycling program exists. Wherever trials have been conducted, the programs have been popular. In fact, farmers, ranchers and local program operators, alike, all want to see the program succeed.

Moving forward, the RCA will be compiling results from its 2008 agricultural plastics collection trials, and developing a series of recommendations to take back to the working group. Anticipated in these recommendations are the roles stakeholders must undertake, in order for an agricultural plastics management program to be successful.

For example, industry would have to provide products of known resin types that could be easily identified for separate collection, and preferably not comprised of composite materials. With that, manufacturers would, too, have to participate in an extended-producer-responsibility plan, in order to provide program sustainability.

Agricultural operators would be accountable for managing plastic wastes to maintain optimum cleanliness, which includes sorting materials by resin type. Once operators deliver the generated material to a local drop-off site, collection facilities would then be responsible for keeping the resin types separated and contained, eventually compacting the collected material to optimize transportation. Lastly, processors would need to develop cleaning capacity to remove residual agricultural contaminants, as well as process plastic into resin suitable for industry use.

As the value of the collected material is unlikely to cover the costs to collect, process and transport it to market, some type of funding mechanism will ultimately be required to create the level of ongoing stable support required to keep the program financially sustainable through fluctuating market conditions. One approach with a strong history in Alberta is product stewardship. In looking at stewardship options, the working group will have several models of stewardship programs to consider, including a long-standing program that supports the collection and processing of pesticide containers, as well as the existing programs for tires, used oil, electronics and paint.

The RCA intends to continue its work, in partnership with other working group stakeholders, to develop a model for a provincial recycling program for agricultural plastics, eventually engaging provincial ministries or agencies that can help make the program a reality. Using the lessons learned from the regional recycling trials, an implementation plan will be developed in early 2009 to shift practices from burning of waste plastics to recycling a valuable resource. Stay tuned for more results.

Dave Whitfield is a waste minimization specialist with Alberta Environment, and an RCA board member. Dave can be reached at dave.whitfield@gov.ab.ca or 403-297-8255.

Christina Seidel is the executive director of the Recycling Council of Alberta. She can be reached at cseidel@telusplanet.net or 403-843-6563.

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"The current management practices for waste ag plastics present both health and environmental concerns."

APRA pursues avenues for expanded polystyrene recycling in Alberta

For about two decades, most urban solid waste-stream audits have determined that seven per cent to nine per cent of solid waste streams are made up of plastic. In recent years, real progress has been made to increase waste plastic capture and recycling. This is particularly true in western Canada where continuous expansion of recycling capacity has avoided an increase in the prevalence of plastic in waste streams in spite of the increasing use of plastics by industry, government and consumers.

This is a "good news story," especially with regard to commercial and industrial plastic waste, consumer streams of polyethylene terephthalate (PET), high and low density polyethylene (HDPE, LDPE) and some smaller streams. Success has not been as quick with polystyrene, particularly in its expanded foamed form.

A challenge encountered by recyclers (and their collection systems) is that the many manufactured forms of expanded polystyrene (EPS) are often incorrectly referred to as Styrofoam® (a trade-mark of Dow Chemicals). Styrofoam® is correctly described as extruded polystyrene (XPS) while EPS involves the expansion of polystyrene beads—an important distinction that is often overlooked. There are several EPS polymerization facilities in Alberta. Additionally, not all foamed plastics are polystyrene. In specific applications, where the performance characteristics of other polymers prove superior, polyethylene, polypropylene or mixtures of a number of polymers are also produced in expanded or foam variants.

EPS has many high-value applications in industry, construction and safety which are not always visible to the public. Its use in often bulky packaging, however, makes it highly visible and it is these applications that are responsible for the perception that EPS waste is a material for which no solid waste solutions are available. This is not correct. Both solid polystyrene and expanded polystyrene are as recyclable as any other plastic—where facilities exist.

Over the past few years, the Alberta Plastic Recycling Association (APRA) has aggressively pursued an EPS pilot in conjunction with industry and Alberta Environment. Although this pursuit did not lead to a pilot opportunity with broader implications, APRA is pleased to report that Beaver Plastics of Edmonton (one of Alberta's largest EPS product manufacturers) was able to develop an in-house recycling program. The program effectively deals with 100 per cent of its own EPS waste, but with no capacity to accept outside feedstock.

> *"Both solid polystyrene and expanded polystyrene are as recyclable as any other plastic —where facilities exist."*

Not to be discouraged, APRA continues to pursue a pilot opportunity—one that will present a higher public profile, with the possibility of encouraging municipal collection and recycling of EPS using currently available technologies.

One promising technology deploys relatively small, free-standing, automated or semi-automated densifiers. The densifiers are two-step. The EPS is first broken into smaller pieces and then fed into an extruder where it is converted into a small, solid block of polystyrene. This process can achieve volume reductions of 20:1 or more. The process renders bulky forms of EPS into a smaller, more easily marketable block form. These are suitable for the re-manufacture of consumer products which would otherwise require virgin plastics.

The deployment of this technology, mostly in American warehousing and large box-store retailing, has allowed significant cost savings for businesses that generate EPS packaging waste in high volumes. The technology, now proven in commercial applications, is capable of processing 80 to 500 lbs an hour depending on equipment size. With polystyrene typically at about one per cent of North American urban waste streams (EPS is only a portion of that one per cent), a single densifier may be able to deal with all of the collected EPS from a smaller city or a regional population in a solid-waste partnership.

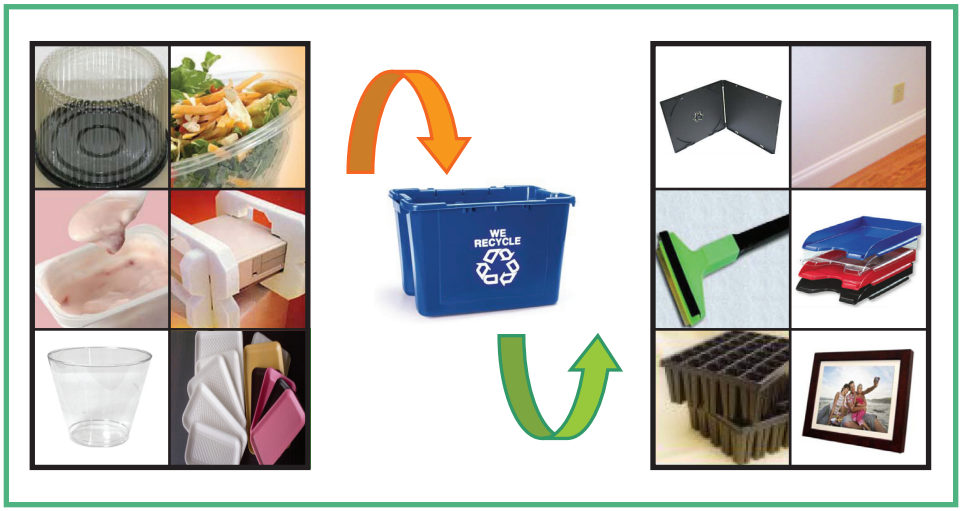
APRA is in the early phase of exploring the viability of EPS recycling in one central Alberta town with a sophisticated, multi-material recycling program. Additionally, discussions are well advanced in another community where we expect to begin a formal, multi-stakeholder engagement for pilot funding. This second opportunity potentially has national, or at least western Canadian, implications and is on par with the high priority initiative to capture and recycle agricultural plastics waste.

Improving the capture of EPS and agriculture plastic waste are the two priority activities for APRA. We will continue to work with industry, communities and provincial governments to increase plastic capture and landfill disposal.

For more information please visit APRA's website at www.recycleyourplastic.ca or contact:

Grant Cameron, APRA executive director, at 780-452-8166 or g.m.cam@telus.net; or

Dave Schwass, APRA president, at 403-250-4778 or schwassd@novachem.com.



Recycled plastics — Historical pricing data for May 4, 2009

Source: *Plastics News*

Resin/Grade	Clean regrind or flake	Pellets
ABS		
Mixed colors, industrial	46 - 55	50 - 59
POLYCARBONATE		
Clear, industrial	66 - 72	--
Mixed colors, industrial	54 - 59	62 - 67
POLYETHYLENE		
HDPE:		
Natural, post-consumer	30 - 34	40 - 44
Mixed colors, post-consumer	20 - 26	30 - 36
Mixed colors, industrial	29 - 39	39 - 47
HMW-HDPE film, post-consumer	--	27 - 31
LLDPE stretch film	--	23 - 29
Clear, post-consumer	--	37 - 41
Colored, post-consumer	17 - 22	24 - 28
PET BOTTLES		
Clear, post-consumer	46 - 54	54 - 60
Green, post-consumer	32 - 40	40 - 46
POLYPROPYLENE		
Industrial	34 - 38	40 - 44
POLYSTYRENE		
Industrial	52 - 55	67 - 82
High-heat crystal, post-consumer	40 - 50	52 - 62
PVC		
Clear, industrial	37 - 43	--

Prices are in US cents per pound for prime resin, unfilled, natural color, FOB supplier, unless otherwise indicated.

Prices are generated from interviews with North American buyers and suppliers. The information provided is based on sources believed to be reliable but its accuracy or timeliness is not guaranteed and no warranties of any kind are provided. *Plastics News* does not intend to specify the price of the materials listed. For price quotes on specific materials, contact the supplier.

For pricing information on virgin thermoplastic resins, call senior reporter Frank Esposito at 330-865-6156, or fax him at 330-836-2322.

APRA is a non-profit association dedicated to making Alberta a model of effective plastic waste management. ***APRA*** is affiliated with ***EPIC***, the Environment & Plastics Industry Council of ***CPIA***, the Canadian Plastics Industry Association.

If you have any comments, information or an article you would like to have relayed through this newsletter please contact us.

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Mission Hill Plaza, P.O. Box 65066, St. Albert, AB T8N 5Y3
Phone: 780-939-2386
E-mail: plasticsrecyc@lincsat.com
Website: www.recycleyourplastic.ca