INTRODUCTION

The Yellowknife Farmers Market (YKFM) initiated its "Waste Reduction and Compost Program" in 2015 to deal with the waste generated at its weekly markets. The YKFM holds a weekly market every Tuesday for 16 weeks from June to mid-September, from 5:15pm to 7:15pm, in the Somba K'E Civic Plaza in Yellowknife.

The "Waste Reduction and Compost Program" consist essentially of ensuring that all the YKFM's vendors use compostable disposable packaging and that the public discard the compostable packaging in the appropriate compost bins. The program had a significant impact on the waste generated at the market. In 2016, 75% and in 2017, 86% of the waste was composted rather than "dump" at the land fill.

The market generated 2,688 lbs of waste in 2017 compared with 2,336 lbs of waste in 2016. Most of the waste was composted never the less the Market would like to reduce its waste. Despite composting being preferable to waste ending up in the landfill, disposable dinnerware is still an unnecessary source of waste that can be reduced and the Program intends to continue its efforts in reducing waste by promoting a reusable dinnerware approach.

2017 was the 3rd year of the "Waste Reduction and Compost Program" and it continued to develop and implement an efficient methodology to reduce waste at the market and to inspire other public events to adopt a similar waste reduction program. In 2017 the Program shared its know-how on waste reduction and assisted three (3) festivals in reducing their waste at their event.

The Program collaborated with Ecology North in producing the "Yellowknife Sustainable Event Checklist" which is "The how-to checklist to running a sustainable, zero waste, bottle water free, energy conscious event in Yellowknife".

The YKFM Waste Reduction and Compost Program continues to learn about reducing waste at public events and hopes to inspire other public events in Yellowknife to adopt waste reduction measures at their event.

2017 WASTE REDUCTION AND COMPOST PROJECT

The project ran from May 1^{st 2017} to March 15 ²⁰¹⁸. The main activities occurred on market days from June 6th to September 19^{th 2017} in Yellowknife at the Samba K'E Civic Plaza. The YKFM held a Christmas market on December 5, 2017 at the Centre Square Mall Lower Level but no data were recorded at that event and therefore the information presented hereby applies only to the summer markets.

The activities were carried out mostly by volunteers and a paid Program assistant:

- The coordinator of the project is a volunteer and a Board member of the Yellowknife Farmers Market;
- The Program assistant was contracted for \$3,000 from May 31st to October 1st, 2017. She assisted the coordinator in all her tasks;
- A team of 19 volunteers supported the program.

2017 PROJECT TARGETS

- 1- REDUCE the amount of waste generated at the YKFM
 - A. The use of single-use items such as disposable dinnerware is reduced;
 - B. Take-out meals are offered in smaller serving sizes.
- 2- RECYCLE all the organics to the City of Yellowknife composting facility
 - A. All disposable items used at the YKFM are compostable;
 - B. The compostable items are discarded in the compost units;
 - C. The organics are collected, inspected to remove contamination and disposed of in the city's organic dumpster.
- 3- EDUCATE the public on reducing waste at public event and on composting
 - A. Information on waste reduction and composting is provided for 16 weeks to the vendors and patrons attending the YKFM and to the population at large via local radio, newspapers and social media;
 - B. A "Waste Management Guide" for public events taking place in Yellowknife is design, tested and implemented.

MAIN ACTIVITIES OF THE PROJECT

1-REDUCE THE AMOUNT OF WASTE GENERATED AT THE YKFM BY

A-REDUCING THE USE OF SINGLE-USE DISPOSABLE DINNERWARE

The market hosted 74 vendors selling produce, meals and crafts, there were 23 food concessions. Over the 2017 summer 12,000 people attend the Tuesday's markets and many of the patrons purchase their dinners from the food concessions. The patrons survey tells us that 75% of the clientele comes to the market to purchase ready-to-eat food. The food vendors use disposable containers to serve their meals and all the containers are thrown out as waste afterwards.

To address the situation the program introduced in 2016 the Loyalty Program as an incentive for people who frequent the Market to bring their own reusable dinnerware. The Loyalty program was pursued for the 2017 Market season. Patrons were encouraged and rewarded to use their own dinnerware when purchasing food at the market rather than using the disposable compostable dinnerware. Patrons who brought reusable containers to the Market received a Loyalty Card which was check every time they used their containers. After eight checks the patrons would receive a 15\$ voucher, which could be used at the Market.

Measurements

- The "Loyalty Card" was used to count the number of people who entered the program;
- A ledger was kept to record each time a patron used its own container. Each use was indicated on the patron's "Loyalty Card".
- A \$15 voucher was given to people who brought their container 8 times.

Results

- 105 individuals registered with the Loyalty Card Program, there were 82 individuals in 2016;
- Collectively, people brought their own containers to the Market 357 times compared to 305 times in 2016;
- 17 people brought their containers eight times and were given a 15\$ voucher reward, there were 16 people in 2016;
- For the last two Markets prizes of reusable produce bags were offered to whoever brought their own containers;

These numbers reflect only the number of people who registered with the Loyalty Card Program. There were other patrons bringing containers to the Market, but either did not know or did not wish to participate in the program.

Encouraging patrons to bring their own containers has a number of positive benefits:

- It is financially beneficial for food vendors, as they save approximately \$0.22 each time they do not have to use a compostable container;
- It reduces waste in two ways:
 - o Firstly, it saves a single-use container, cup, or cutlery from ending up in the compost bin,
 - Secondly, it saves any uneaten food which can be brought home and eaten as leftovers, instead of ending up in the compost bin on-site.

Communication, education and awareness

The Loyalty program was advertised many ways throughout the summer markets. The Waste Reduction and Compost Program developed a communication plan where weekly advertisements were prepared and posted on different media.

- The Loyalty Card was advertised weekly in the Yellowknifer;
- Every food vendor posted a sign inviting people to bring their container, to register with the Loyalty Program and get rewarded;
- There were 3 sandwich boards advertising the Loyalty Program positioned at strategic point at the market;
- There were radio announcements on Moose FM encouraging people to bring their container;
- Various social media posts were done;
- A pull up banner was done and used at the Christmas Market.

The advertisement paid off this year as 55% of the patrons were aware of the Loyalty Card program as per the 2017 patron survey. However being aware is not sufficient since many patrons forgot to bring their container despite their best intentions.

Lessons learned

There were only 17 people who could complete the 8 checks of the Loyalty Card out of 105 registered. Most people could not complete because they were out of town and tourists attended only one or two markets. Many Yellowknifers leave town for the summer, and expressed disappointment that they wouldn't have a chance to fill out all the spaces on their Loyalty Cards. This also provides no incentives for out of town visitors, who may be only visiting for a few days or weeks. Additionally, members of the public who only found out about the Loyalty Card program after the halfway point of the summer felt that they had no incentive to bring containers to the Market. This also limits the reward to patrons who cannot afford to frequently purchase meals at the Market.

The disappointment was demonstrated through patron feedback at the Info Table ("so, there's no point in us coming back, because we won't be able to fill it up?") and in the severe drop-off in loyalty card users in the latter 6 weeks of the Market (a decline that was not reflected in the weekly patron count).

When patrons were ask to comment about the Loyalty Card Program

- Thirteen (13) people suggested that Reusable dinnerware be sold on-site;
- One person mentioned that many food vendors pre-packaged their food, negating the benefit of bringing your own container to the Market.

Into the future

The YKFM wants to continue to REDUCE waste at its Markets and be a leader in reducing waste at public events.

In 2018 the YKFM would like to try a different approach by providing/renting reusable containers to its patrons. There are many successful projects at college cafeteria where reusable food containers are used and returned. The YKFM intends to pilot a project where reusable containers would be available to be used at the market, returned, washed and reused at the market. If successful that approach would reduce waste and eventually could be applied to many food takeout business in Yellowknife.

The Loyalty card program will likely be maintained to support people who bring their own container. However to make it more appealing In the future the loyalty card will have 5 checks and instant prizes to be offered each week to people who bring their container.

1-REDUCE THE AMOUNT OF WASTE GENERATED AT THE YKFM

B-REDUCING THE AMOUNT OF WASTE BY OFFERING SMALLER MEALS

The food vendors were invited at the orientation in May 2017 to offer smaller serving sizes to reduce waste. The vendors were informed that in 2016 the volunteers at the compost bins had observed many containers thrown away while being full of food.

The program did not monitor if vendors were selling smaller servings. Many vendors do sell smaller items ex: Spring Rolls , Samoza, bowl of soup, etc...

There was no method used to assessed if there were less food thrown away in 2017 than in 2016. Some volunteers who worked at the compost bins in previous years thought they saw less food being wasted in 2017.

In the Future

The Market will continue to ask vendors to have smaller meal options. In 2018 the Market is developing a strategy to bring more tourists to the Market. It is likely that the strategy will encourage vendors to have sample sizes for tourists to try a variety of products sold at the Market. The sample sizes will probably be purchased by local patrons who like smaller amount of food. This might result in less food being thrown away.

2-RECYCLE ALL THE ORGANICS TO THE CITY'S COMPOSTING FACILITY

A-ALL DISPOSABLE ITEMS USED AT THE YKFM ARE COMPOSTABLE

The food vendors use disposable containers to serve their food. The YKFM is encouraging people to bring their container and not to use a disposable container. However the majority of patrons purchasing food are still using disposable containers. These disposable containers would have created an incredible amount of waste if the Yellowknife Farmers Market had not taken action to address the situation.

Following on the success of the 2015 and 2016 composting program the YKFM made it mandatory for all vendors to use only compostable packaging. The vendor application form included a clause where vendors committed to use only compostable items at the market.

At a meeting in May 2017 the vendors were given the following information:

- They were reminded to use only compostable items. No foam or plastic could be used.
- They received information about compostable containers and where to purchased them.
- They were asked to use refillable bottles to contain sauces and condiments rather than individual plastic envelopes such as those used for soya sauce.
- They would receive updates on the compost program regularly throughout the season by e-mail and social media.

Very few exceptions were made to the program:

- Early on in the season, we noticed that a few vendors were using non-compostable (PP5) lids. After speaking with them, we found that these lids had accidentally been sold as compostable by the local distributer. We were not able to get the correct lids ordered before the Market was over. We were able to work with food vendors who were using these lids, and convinced two of them to stop using the lids altogether. We allowed for an exception in the case of the third vendor due to the circumstances.
- One vendor continued using plastic wrapping on her frozen products. We had tried, in past years, to find a compostable solution, but none of the options worked for the vendor. Hopefully in 2018 the vendor will find a compostable cover for the frozen products.
- Vendors whose goods were designed to be consumed at home were not held to the strict standards of food vendors who served meals. Thus, pies, loaves of bread, and vacuum packed fish were allowed to be sold in plastic and tin containers.

Prior to each Market, while vendors were setting up their stations, the Program assistant conducted a "vendors survey". The survey introduced in 2015 is an incredibly useful tool which served a number of purposes and it should be continued in future years. The primary purpose of the vendor survey was to identify at the source whether there was any plastic waste being distributed at the Market – all of the materials at each station were checked to make sure they

were all made of a compostable material. It also served to introduce members of the compost team to the vendors, find out if they were having any problems complying with the guidelines, and pass on any relevant information. During the vendors survey, the program assistant distributed compost bags to anyone who asked for one, and posters advertising the Loyalty Card program. It is good for the vendors to know that there is someone there who will hold them accountable for using compostable products, but also provide them with a friendly reference point for if they have any questions about the program, or any problems.

Measurements

- The observations, questions and comments of the vendor survey;
- The volunteers standing by the garbage and compost bins paid attention to the items being discarded to see if all containers, plates, utensils, cups were compostable. Noncompostable items were reported to the program.
- The content of each garbage and compost bag was inspected at the end of each market. This allowed to verify what containers were used by the vendors. The observations were recorded and served as a qualitative measure in evaluating the compost program.

<u>Results</u>

- Most food vendors used compostable containers and utensils throughout the summer.
 There was the occasional use non compostable container, straws, cups. When it happened the vendor was promptly identified and he usually complied by the following week.
- All vendors used refillable bottles for their sauces and condiments, no plastic envelopes were used.
- Some vendors used tin plates and an alternative compostable plate was not found. This will be addressed in 2018.
- The vendors were receptive when they were asked to change some of their products.
- The compostable utensils and the PLA 7 clam shell containers introduced in 2016 continued to be a big "hit" for the public in 2017. People were intrigued and asked questions such as "What are they made of?" "How long to compost?". This often started conversations about composting with the volunteers at the compost bins and allowed to provide information to the public.
- The use of compostable utensils "made it easy" for people to put their containers in the compost bins without having to remove the utensils.

Communications

- The vendors received the "2017 YKFM YELLOWKNIFE FARMERS MARKET © **VENDORS GUIDE**, Waste reduction tips & Compostable packaging";
- The public was informed by social media and the weekly advertisement in the Yellowknifer that all dinnerware and packaging used at the YKFM were compostable.

Lessons learned

- Remain vigilant and constantly monitor the packaging sold by the suppliers and the items used by the vendors;
- Provide and repeat information on compostable containers regularly to vendors.

Into the Future

- Provide a required education session for vendors. Conduct a follow up quiz to identify if
 there are any further lacks of understanding among the vendors of the compost program.
 We would like all vendors to buy-into the program, not simply comply because it is
 required of them.
- Communicate regularly with the local distributers before the first Market to ensure that all of their supplies are actually compostable, make sure they also know to keep a healthy stock of compostable items (especially cutlery).
- Try to have all packaging used at the Market to be compostable.

2-RECYCLE ALL THE ORGANICS TO THE CITY'S COMPOSTING FACILITY

B-THE COMPOSTABLE ITEMS ARE DISCARDED IN THE COMPOST UNITS

Ten green compost bins were set up around the site each Market day – at least one green bin was placed beside each garbage bin, and one bin was placed at either side of the amphitheatre space. Six "waste stations" throughout the Market site had at least one compost bin and one garbage bin, some had recycling bins as well.

The compost bins had signs above them that indicated the variety of items at the Market that could be composted.

The garbage bins had posters taped to their lids which told people that all of the waste produced at the Market was compostable, and featured a large stop-sign image. Whenever possible, there was one volunteer at each waste station, if there were not enough volunteers to cover all of the stations, they were posted at the busiest locations.

The volunteers invited the public to discard their compostable waste (container/cup, food, utensils, napkins) in the compost bins. The volunteers received a brief orientation to the program and were asked to thank the public for using the compost bins and answered their questions re: the compostable items.

Volunteers were encouraged to smile and use hand gestures to guide patrons in sorting their waste. The program insisted on a friendly approach when instructing people on how to sort their waste. The volunteers were identified by wearing a Compost Program apron. The aprons were given to the volunteers at the end of the season as an appreciation token for their contribution to the program.

The program hosted an afternoon tea on Sunday September 3rd, 2017 to thank all the volunteers. Most of the volunteers attended the tea and were very appreciative of the gesture.

Measurements

- The volunteers observed what was being discarded and informed the program if a noncompostable item was used by a vendor;
- The volunteers reported the patrons comments or suggestions to improve the program.

Results

 The public was receptive in using the compost bins and did not mind having a smiling volunteer help them sort their waste;

- Sometimes people were embarrassed having the volunteer witness the amount of food they were throwing away;
- "FOOD IS COMPOSTABLE" Surprisingly, after running the Compost program for 3 years, there are still many people who do not know that food is compostable!!!
- When a volunteer was at a waste station, a negligent amount of compostable waste was put into the garbage bins however garbage bins that didn't have a volunteer looking over them often ended up mostly full of compostable materials.
 - This speaks to the importance of having volunteers to help patrons sort their waste, and to an increased need of educating the public as a whole on what is and is not compostable, so that they become more comfortable using the right waste receptacles.

Lessons learned

- Volunteers are necessary for the Compost program to be successful;
- The public still need help in sorting their waste;
- The public needs to be educated in how compost works and what is and is not compostable;
- An friendly efficient Compost Education program is a must if we want to reduce waste at public events.

2-RECYCLE ALL THE ORGANICS TO THE CITY'S COMPOSTING FACILITY

C- THE ORGANICS ARE COLLECTED, INSPECTED AND COMPOSTED

The city of Yellowknife collected the garbage bags after each market and the YKFM collected the compost bags. All the bags were eventually disposed of in the garbage or the compost containers provided by the city. To measure the anticipated result of the program, which was to reduce by 90% the waste generated by the market, the YKFM gathered all the garbage and the compost bags in the same area to be weighed and examined at the end of each market.

The total compost weight was compared to the total garbage weight, and the percentage of waste that was being diverted from the landfill (the "diversion rate") was calculated for each Market. The calculation for this is (compost weight/(compost weight + garbage weight))*100. All of this data was collected in a spreadsheet and used to calculate the results.

Measurements

- The program tracked each week the weight of garbage and compost bags. The percentage of compost/total waste was recorded and reported.
- The content of the bags was examined to see if the food vendors were using compostable containers and if the public was putting the compostable waste in the proper units.

Results

- Overall, throughout the 2017 Market season, the public discard 86% of their waste in the compost bins.
- The original diversion rate goal of 90% was attained the second week of the Market, with the rate calculated at 93%.
- There was a significant increase in the composting rate between this year, 2017 and last year, 2016. In 2016 the diversion rate did not reach 85% until late-August, in 2017 the diversion rate was over 85% at ten of the sixteen Markets.
- In total, more than 1,222 lbs. of compostable material was sent to the compost site of the Yellowknife Solid Waste Facility.
- There was very little garbage contamination in the compost bags, with bags being over 99% compostable almost every time.
 - The primary source of contamination came in cases where vendors used plastics (eg. the PP5 lids and ice-pop wrappers).
 - There were occasionally pie tins when people ate food at the Market that was intended to be consumed at home.
 - Every so often there was contamination from outside sources (eg. Tim Hortons/McDonalds/Javaroma coffee cups) due to the Market being in an open and public location.

- When a volunteer was at a waste station, a negligent amount of waste was put into the garbage bins they were watching over, however, garbage bins that didn't have a volunteer looking over them often ended up mostly full of compostable materials.
 - This speaks to the importance of having volunteers to help patrons sort their waste, and to an increased need of educating the public as a whole on what is and is not compostable, so that people become more comfortable using the right waste receptacles.

It is worth noting that the weight calculations were taken before the bags were opened and any waste that had been miss-sorted was re-sorted into the appropriate bag. Since the majority of waste in the garbage bags was actually compostable, and was ultimately moved into compost bags, the actual diversion rate is likely around 95%, and the total lbs. of waste that was diverted is also significantly higher that the number presented. The calculations provided are what the numbers would be without a last intervention by the program at the end of the markets.

The diversion rate calculations were shared with the compost team volunteers each week, they were also shared with the public through social and print media. The tracking and reporting of the percentage of compost/total waste had a significant positive impact on volunteers, food vendors, and the public. It brought credibility and enthusiasm to the program. It is also helpful to compare years to years, and individual Markets with each other to determine what works and what doesn't.

<u>Lessons learned</u>

- It is important to share the results of the program on a weekly basis to the public. This rallies people to contribute towards the success of the program.
- The results should be easy to understand ex: % of total waste was composted.
- "Convince" vendors, suppliers and the public to endorse the program rather than enforce it. Use a POSITIVE approach, make it "EASY" and "THANK" all for their support.

3-EDUCATE THE PUBLIC ON REDUCING WASTE AT PUBLIC EVENTS AND ON COMPOSTING

A-INFORMATION ON WASTE REDUCTION AND COMPOSTING IS PROVIDED FOR 16 WEEKS

Educating the public on waste reduction was achieved at the Yellowknife Farmers Market and at 3 local festivals and through printed press and social media.

The patrons of the YKFM, average 750 people per week, were exposed to 16 weeks of waste reduction information.

- Most of the public education at the YKFM took place at each compost bin which had a comprehensive sign illustrating the compostable items used at the market and a volunteer providing additional information when asked by the patrons;
- Other signage informing people about composting were posted throughout the market. Ex: The weekly market blackboard often posted compost information;
- The Loyalty Program informed the public about the impact of disposable containers and how to reduce their use.

The compost team i.e. the coordinator, the assistant and the 3 most active volunteers met weekly to discuss the program and provide solutions to address challenges as they arise. Weekly communication/education content was determined at those weekly meetings.

The public not attending the market received information on waste reduction and composting from June 6th to September 19th in the weekly printed newspaper the Yellowknifer, the radio station Moose FM and via the YKFM social media. All messages were illustrated with a picture, a graph or a drawing ensuring the messages were accessible to all. Examples of the information shared are:

- Inviting the public to use a container when purchasing take-out food;
- Information on the compostable items used at the market;
- Providing the results of the weekly diversion rate at the YKFM;
- Thanking the volunteers and the population for their support to the program.

The Compost team shared their know how on reducing waste with 3 local festivals, Folk on the Rocks, Ramble and Ride and Pride NWT. The team provided advice to the event organizers and the team's volunteers helped at the waste stations of the festivals. The program did not measure the results of participating at these 3 events other than supporting their organizers and volunteers in putting in place a waste reduction approach at public events.

Measurements

The knowledge acquired by the public was measured by:

- Observing and documenting the behaviour and comments of individuals at the compost bins and at the YKFM INFO table;
- Observing the content of the compost and garbage bags;
- The 2017 patron survey with questions on the Loyalty Card and Compost program.

Results

By the 10th week of the market the majority of the public had learned where to dispose
the compostable material. This was observed by the volunteers who saw that people
needed no instruction to choose the compost bins for their compostable material. It was
also observed when examining the compost and garbage bags at the end of each market
and finding that most compostable items were in the compost bags.

The awareness of the Waste Reduction and Composting Program at the market was measured with a Patrons survey.

Results

- 100% of the survey respondents were aware of the compost program;
- 55% of the survey respondents were aware of the Loyalty card program.

Lessons learned:

- The compost information material must be simple, attractive and answer the questions of the public.
- Volunteers at the compost bins are the most efficient compost educators.
- It takes time for the public to adopt a "composting behaviour". The same message had to be repeated many times before the public chose to voluntarily put their compostable waste in the proper units.
- The YKFM offers an ideal platform and length of time to convince people to adopt a "composting behaviour".

Into the Future

- Volunteers will continue the be at the compost bins because they are very efficient educators;
- Attractive and varied compost information material should be developed, tested and used throughout the 16 weeks of the market. Ex: Demonstrations on composting.

3- EDUCATE THE PUBLIC ON REDUCING WASTE AT PUBLIC EVENTS AND ON COMPOSTING

B- "WASTE MANAGEMENT GUIDE FOR PUBLIC EVENTS" IS PRODUCE

The Compost team collaborated with Ecology North in writing a "Sustainable Event Guide" where ideas are provided on how to reduce waste at public events.

Throughout the summer the Program assisted 3 festivals in implementing a waste reduction program at their event. During the process the Program took notes and communicated its observations to Ecology North for the "Sustainable Event Guide".

The Program also observed the July $1^{\text{st, }2017}$ event put out by the City and came up with observations and recommendations which were included as well in the "Sustainable Event Guide"

Result

• A publication called "Yellowknife Sustainable Event Checklist" was published by Ecology North in the fall 2017 and launched in January 2018.

In the future

- The "Yellowknife Sustainable Event Checklist" needs to be promoted;
- efforts should continue to ensure that all public events adopt a waste reduction program.

The environmental, social and economic benefits of the project

- The public attending the YKFM collectively adopted waste reduction and composting behaviours. This might have generated a sense of community and good citizenship.
- The use of compostable containers showed the public and food vendors that alternatives to plastic and foam are available.
- People observed and became aware of the waste generated by other public events and how the YKFM managed their event responsibly.
- The project reduced the solid waste sent to the land fill and hence reduced the costs of operating the Solid Waste facility of the City of Yellowknife

CONCLUSION

The grant provided by the "Waste Reduction and Recycling Initiative" allowed the Yellowknife Farmers Market to reduce waste and to engage the public in adopting behaviours favorable to waste reduction and composting.

The success of the YKFM compost program is due to the dedication of the volunteers and the efforts of the YKFM staff. All were very reliable and engaged in the project and provided ideas and solutions to continue to improve the project.

The project is grateful to the local businesses and organisations for their generosity. Namely Northern News Services who generously sponsored a full page advertisement for 16 weeks on the Market and its waste reduction and composting program.

The Yellowknife Farmers Market is an ideal platform to develop a waste reduction program for public events. Because the market lasts 16 weeks it is possible to try new approaches to waste reduction and adjusted according to the reactions of the public. Many of the program's components such as signs, posts on social media, advertisements were adjusted following comments from the public.

The Waste Reduction and Composting Program used at the YKFM is becoming the standard that Festivals in Yellowknife want to adopt for their event. In 2017 three festivals approached the YKFM for advice and support. Two additional Festivals contacted the YKFM for support for their 2018 events.

In 2018 the YKFM will continue to innovate in waste reduction by trying a "rental service of reusable containers". The YKFM intends to continue to be a leader in waste reduction and to inspire others in adopting similar waste reduction programs.