

GROW ELGIN

Learn – Harvest – Share

Grow – Cook – Compost

Background

Grow Elgin 'grew' out of the success of a successful project to develop community gardening, composting and local food in Keith, Moray. REAP, the local environmental charity and the community in Elgin successfully bid to the Climate Challenge Fund to carry out a project of similar focus in Elgin, the main town in Moray, approximate population 19,000. Having seen some of the successful activities and connections made in the Keith project, then groups, community organisations, schools and community members in Elgin wanted to develop growing spaces, food skills and composting activity, starting in 'hot spots' in this large town.

Research, community feedback and letters of support showed that Elgin community groups and members lacked well-trained, community focussed support to develop their growing spaces, composting and local food cooking skills to:

- Plan, develop and maintain community spaces
- Link school & community gardens to their wider community of parents & neighbours
- Skill up to learn basic gardening and composting techniques
- Plan garden produce for tasting and cooking sessions
- Allow participants to take easy steps to make low-carbon, locally based living decisions about their food
- Build up community spirit at fun gardening events open to all

Keen to use knowledge, resources and equipment (such as the electric bike used in the Keith project) and to build on existing skills in a new area, REAP were pleased that there was a strong response within the Elgin community to the proposed project.

Report compiled by Ann Davidson, REAP Project Manager April 2016

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Project Aims and Outcomes

Grow Elgin aimed to:

- Reduce community carbon emissions in Elgin by creating 258m² of new growing space and replacing 774kgs of shop-bought food with locally grown food
 - TARGET SAVING = 1199.7kgs CO₂e
- Reduce food waste going to landfill in Elgin through food waste collections, leafleting to encourage behaviour change and setting up community compost bins
 - TARGET SAVING = 7915.25kgs CO₂e
- Increasing the numbers of volunteers for REAP and other organisations
 - TARGET = 4 new volunteers for REAP; 2 for other organisations
- Developing low carbon community assets – edible public space
 - TARGET = 3 sites at least developed
- Generate interest in low carbon living through food waste collections by electric bike through the centre of Elgin, project publicity and all other project activity
 - TARGET = 75 trips, 10 blogs, 250 leaflets



Headline Achievements

Over the year of the Grow Elgin project an estimated 11473.94kgs of CO2e was saved, well over the target of 9114.95kgs*

carbon action	target	actual	actual CO2e saved
new growing land	258m2	314m2	1460.10
leaflets	250	557	3333.00
compost bins	10	15	6666.00
compost deliveries	75kgs	42.4kgs	14.84
totals	CO2e target 9114.95kgs		11473.94kgs

Grow Elgin employed 5 paid staff and recruited 4 new REAP volunteers, with 12 other volunteers helping out on planting projects

59 workshops, talks, courses and courses were held attended by 565 people across Elgin. We engaged with 320 other Elgin community members (at least) who were interested enough to talk to us, share gardening stories and tips, take a leaflet or a packet of free seeds to grow at home at stalls, talks and meetings.

The sessions included composting sessions, raised bed parties and construction sessions, seed sowing and planting, local lunches, community planting sessions, stalls and growing sessions at events, electric bike collections of food waste, weeding sessions, harvesting and cooking, wormeries and tree care and planting.

All ages of people were involved in the project:

Activity/Location	numbers involved	number of sessions
school staff, volunteers & children	401	19
raised beds	34	6
garden courses, permaculture, trees etc	37	8
community gardens	31	14
community planting day	18	1
older people day centre	20	6
compost sessions	16	3
community consultation	8	2
totals	565	59

5 steering group meetings took place with 7 members who helped direct the project, provided feedback and helped with project evaluation and targets. The REAP Board received the regular monthly reports from the Project Manager and also discussed the progress of the project at 6-weekly REAP board meetings.

If Grow Elgin had a vision statement for achievements over the last year it would be:

‘Exceeding our targets in developing more community growing land and enabling more people to compost, by satisfying a need in the community to get back in touch with food growing and tackling global problems locally’

**We have used the original target figures and methods of carbon calculation current at the time of the project application. These have since changed. For a breakdown of our carbon calculations, see appendix 4*

Project Outcomes

Carbon Outcome: Reduce our community carbon emissions by reducing food waste going to landfill by 7,915.25kgs CO₂e

Total reduction 10013.84kgs CO₂e - outcome exceeded

This total comes from weight of compost diverted from landfill to compost bins and through e-bike food waste collections and assumed behaviour changes after attending composting workshops and receiving or downloading composting information leaflets.

TARGETS

Leaflets 250	3333kgs CO ₂ e
compost courses 16 x 20kgs compost	112kg CO ₂ e
food waste collections 75 X 1kg	26.25kg CO ₂ e
1100 kgs food waste in 10 new compost bins	4444kgs CO ₂ e
Total = 7915.25kgs CO₂e	

ACTUAL GROW ELGIN

Leaflets 557 (but we are just counting 250)	3333kgs CO ₂ e
compost courses kgs compost	0kg CO ₂ e (not due to no-one composting but evidence collected elsewhere – ie new compost bins)
food waste collections 12, total 42.4kgs	14.84kg CO ₂ e
1650 kgs food waste in 15 new compost bins	6666kgs CO ₂ e
Total = 10013.84kgs CO₂e	

Composting

Anecdotal evidence and our feedback forms showed that around half of our participants were doing some composting at the start of Grow Elgin. 16 individuals and organisations set up compost bins as a result of Grow Elgin and 2 organisations took part in our e-bike compost deliveries.

Compost bins

Of the 16 compost bins set up, 11 participants gave us detailed reporting figures of weekly compost weights. The figures showed the following:

compost bin site	number of bins	weekly compost weight (kgs)	x 52 weeks
gurness day centre	1	5	260
individual 1	1	1	52
elgin academy	1	1	52
spynie day centre	1	1	52
pinefield parc	1	3	156
individual 2	1	1	52
action for children	1	1	52
individual 3	1	2.5	130
bishopmill school	1	2	104
east end school	1	2	104
seafield school	2	6	312
total	12	25.5kgs	1326kgs
total other bins	3		

From these figures, we divided 1326 by 12 bins to give an average figure of 110.5kgs per bin, per year. Adding in the 3 other bins we arrive at a total of 15 x 110.5kgs food waste diverted per annum as a result of

Grow Elgin, giving an estimated total of 1,657.5kgs food waste. This backs up our reporting estimates of 110kgs of food waste diverted per annum, per compost bin, though this may well be an under estimate.

E-bike Food Waste Collections

We also set up a new, dedicated bin at Elgin Allotment association's garden share site. This bin is not counted in the above figures, as it receives the food waste from the e-bike collections. Grow Elgin included research and administration time for setting up the e-bike foodwaste collections following SEPA guidelines and protocols. Our researcher liaised with a REAP volunteer and SEPA to investigate risks, legislation and procedures attached to developing this service. (please see appendix 3) A summary of findings includes:

- Most food businesses have already set up food waste collections with dedicated commercial collection companies operating in Moray, following legislation (The Waste (Scotland) Regulations 2012) and implementation in early 2014 (large businesses) and 2016 (small businesses). REAP did not aim to replace these systems or business collections. This helped us focus on non-food businesses who have a staff canteen which could collect for our small scale collections.
- REAP worked with SEPA to register as a professional carrier of waste, collecting only plant tissue, and set up risk assessments and waste transfer paperwork to be filled in by the collection point and REAP for each delivery, which we did.
- REAP checked that our bike trailer and containers met with SEPA guidelines.
- REAP trained all staff and volunteers in bike safety, risk assessment and safe procedures for the service.

We also experienced some problems with volunteers for this service. Two volunteers were trained up to use the e-bike and both began the collections, but both had to withdraw, causing some gaps in the service. REAP project staff finally took over the collections.

The food waste collection service was advertised in the local tsimORAY newsletter in December 2015, resulting in 2 new organisations joining up. VIP Childcare also asked REAP to do some awareness raising with their wee ones which resulted in a good article in the local paper.



Behaviour change

Grow Elgin aimed to increase the numbers of people composting and diverting their waste from the general municipal waste into compost bins. REAP ran a series of composting courses and 2 composting 'parties' (similar to the raised bed parties we ran). Leaflets were also handed out at stalls at the Elgin Food Fair event, Greenfingers open day (Greenfingers are a member of the steering group), in winter at the shopping centre and elsewhere.

Grow Elgin is funded by



REAP is a local environmental charity based in Keith, Moray, founded in 1997

Current work includes promoting local food and supporting Moray Food Network, tackling fuel poverty, community development work and administers the Hill of Towie Wind Farm Community Benefit Fund.

Past and present partners include The Moray Council, HIE, NHS Grampian, SNH and SCARF

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Why compost?

Compost makes valuable, free fertiliser for your garden, saves on harmful greenhouse emissions from food waste and saves you money at the same time.

What do I compost?

An equal mix of **Brown and Green** is ideal:
Brown stuff includes dead leaves, torn up cardboard/ egg boxes ripped up, scrunched up paper, straw.
Green stuff includes grass clippings, annual weeds, carrot tops, spent cut flowers, raw fruit & veg peelings, tea bags.

How do I Start?

Put your bought or home-made compost bin in a sunny spot handy for emptying your kitchen food waste. Then, layer your browns and greens, starting with branches/woody stems at the bottom to allow air circulation.

Top Tips for Composting

Do add water if dry; add more browns if compost gets too wet. Wear gloves and wash your hands after working with compost.

Don't add pet poo, or high protein food waste as these can attract pests. No rooted weeds (put those in your brown bin).



Every school we worked with also had leaflets about composting and Grow Elgin sent home to parents. It was originally planned to collect compost from neighbours near the community gardens set up, and while those living locally attended courses and sessions, the planned level of local engagement was not reached in this way. However, a consultation exercise involving leafleting an area in Elgin and following up at the local schools and shops to invite people along to the MIB to find out more about growing your own and composting, and to consult with locals about what they'd like to see in their area did attract some interest (see community outcomes – environmental below).

At the start of the project, we also used Changeworks' Kitchen Canny system, but again this did not work as envisaged. None of those interested or those taking the pack home used the pack or recorded results for us (though most collected food waste and other data for our statistics). The kitchen cannys might be more successful used in a project that was more directly targeted at shopping, planning meals and cooking activity.

The best composting results came from supported behaviour change: at our courses, raised bed and compost parties, food waste collections and setting up whole school systems for food waste collection and composting with repeat input and support from REAP staff.

Carbon Outcome: Create 258m² of new growing space in Elgin, reducing the community carbon footprint of Elgin by 1199.7kgs CO₂e by replacing shop-bought food with locally grown produce
Total area = 314m²= 1460.1kgsCO₂e - outcome exceeded

This outcome aimed to increase the area of land turned over to growing local food, which replaced shop-bought food, thus saving carbon. Due to the great response to Grow Elgin in the local community, this target has been exceeded.

For our carbon figures for this outcome, we used the Carter figure of 3kgs of food grown per m² in the average allotment/garden. We used the (then) DEFRA figure of 2.09kgs of CO₂e emissions created by every 1kg of supermarket/shop bought food and 0.54kgs of CO₂e emissions created by every 1kg of locally grown food.

Grow Elgin converted 314m² of previously non-growing land to local food production, thus changing an estimated $3 \times 314 = 942$ kgs of shop bought food to locally grown food

Our end of project evaluation showed a lower figure of 64kgs of food grown in 66m² of new growing space (just under 1kg per m²), but several of the respondents had only installed their raised beds recently in this one year project. REAP also often planted herbs, salad leaves and strawberries as easy plants to get growing off to a nice, manageable start, which of course will not yet be harvested, or yield a lightweight harvest. We are confident that the recognised figure of 3kgs food per m² would be reached for the spaces planted over the next year.



A well-watered Grow Elgin Raised bed with burgeoning produce

Setting up Community Gardens

A number of groups involved in the original Grow Elgin bid to CCF were ready to get started straight away to set up their community gardens. Elgin Youth Café, Elgin Allotment Association and Action for Children identified areas to start or increase local growing, and these 3 groups worked with REAP trained staff and volunteers all through this year to develop growing spaces. PARC facility for children out of school, 7 schools, Spynie and Gurness day care/sheltered housing facilities, raised beds and land at Cooper Park (run by the Moray Council) and 6 raised bed parties contributed to a total of 314m² of new land for growing.

Grow Elgin spaces

At Action for Children, based in a large Georgian building with extensive grounds, REAP trained children and young people in growing skills, raised bed construction, composting, weeding, harvesting and cooking. Most sessions seemed to attract the rain, but the workers and young people enjoyed coming out with a keen willingness to grow, harvest, compost and cook! Over 12 sessions and 4 visits, 24 adults and children were involved and three 1 x 2m² raised beds were constructed, filled with donated soil, planted up and used for tasting and cooking.



Action for Children raised bed garden and harvest

At Elgin Youth Café, a tiny back yard provided a productive garden for the young people attending healthy cooking sessions, staff and other groups using the Café. Vertical gardening was tried on a wall, with successful harvesting of stevia as a sugar substitute amongst other leaves and herbs, plus a raised bed, where young people learned growing skills. One of the young people used his confidence and new skills to try propagation at home. Other EYC volunteers worked with members of the public at our community planting day in early March to plant up 90m2 of new growing space in the local authority Cooper Park, creating a series of edible raised beds and orchard space (see community outcomes) and EYC staff were regulars at Grow Elgin steering group meetings



Elgin Youth Café's vertical spaces and winter harvest

Elgin Allotment Association were happy for REAP to develop a new plot at their garden share site, where 6 gardening courses were hosted including seed sowing, composting and harvesting. A lovely summers' day for our June harvesting event saw the Elgin youth café smoothie bikes in action, juicing up local fruit and allotment produce for everyone to enjoy. EAA participants were also kind enough to record some produce weights and their journeys to the allotments.

	number of individual journeys	miles travelled	number of allotment holders recording travel
Journeys to allotments - walking	96	46.2	7
Journeys to allotments - cycling	116	250.05	8
Journeys to allotments – by car	94	190.9	11



Sunshine on Elgin – tasting local smoothies at a Grow Elgin gardening course at Elgin Allotment Association's garden share

Work at two day care facilities saw raised beds erected and local herbs, fruit and vegetables planted for residents, day visitors and the wider community to enjoy. A specially designed raised bed for those with limited mobility was put up at each of the two venues, using a local social enterprise which works with people with mental health problems. The gardening activities provided a stimulus to some happy memories and reminiscences for some participants with dementia and fun for everyone involved – especially as the sun shone on the REAP sessions there!



Planting accessible local edibles at Gurness (left) and Spynie (right) day care facilities

Schools Work to connect into local communities

Grow Elgin engaged with 7 schools who had sent letters of support or who became involved later on through project publicity. 3 of the schools were specifically targeted as feeder schools for an area of Elgin REAP had been asked to engage in (South Lesmurdie). The secondary school worked with, Elgin Academy, were particularly supportive, hosting a large area of new raised beds and engaging with the whole school and parents. Some wonderful sessions on gardening, erecting raised beds, tree planting, composting and seed sowing, plus later in the year, harvesting and using the produce reached a total of kids and staff and parents. Composting bins were particularly successful, with pupils and staff taking on weighing and recording tasks for Grow Elgin in response to REAP's training and management systems with labelled caddies & classroom & staff room collection points.



A selection of great moments from Grow Elgin School activities around local food and composting

Telephone: (01343) 548777 www.northern-scot.co.uk

Bishopmill Primary School's Primary 4 class gather round before planting their orchard, as part of the REAP Scotland project. NS Images No. 031375

Orchard project puts pupils' focus on food

SCHOOL pupils in Moray have been reaping the benefits of a tree-planting scheme.

The charity REAP Scotland has given expert advice to children from Bishopmill Primary, Greenwards Primary and Elgin Academy as part of its Grow Elgin Project.

This has involved planting orchards in the grounds of the schools.

Dorothy Allan, REAP project worker, said: "The fruit trees we are planting are all specially selected varieties of eating apples, cooking apples and plums suitable for growing in the Elgin area."

"Planting orchards with young people helps them gain a greater understanding of where our food comes from, and will provide people with free fruit for years to come. Thank you to all the teachers and pupils who helped out."

More information, including gardening and composting advice, is available from REAP's Grow Elgin project on 01542 888070 or from www.reapscotland.org.uk

Planting their tree are Primary 4 pupils (from left) Oscar Hirst, Gregor Booth, Alex Wilson and Blair Mitchell. NS

One of the 4 press releases on the Grow Elgin project

Community Outcome - Social: More volunteers engage with local food issues – 4 new volunteers for REAP and 2 new volunteers for other groups.

Total of 4 new volunteers for REAP and 2 for community groups - outcome met

Volunteers joined REAP in a variety of ways for Grow Elgin, varying from our stalwart seed packer and labeller in the office who has enabled us to hand out around 225 packets of free seeds during the project, to cycle delivery volunteers and those helping out more informally with organisations, or turning up to our community events and planting day to help as a one off, or in an informal way. Often attendance at an event triggered participants to get more involved and then sometimes move to sign up as an official volunteer.

Despite the issues with finding a volunteer for the e-bike collections (which we realised requires a high level of confidence due to the very public, visible nature of this task!) REAP's volunteer policy, procedures and training proved a good framework for engaging volunteers and facilitating involvement with Grow Elgin. Steering group members also welcomed the chance to get involved in Grow Elgin events and opportunities for their volunteers, for instance Elgin Youth Café's Delta Force young volunteers were really involved in the Cooper Park planting day.



"I can't believe this – you're turning me into a gardener!" Comment from one young person helping out with Elgin Youth Café's Delta Force young volunteers at the planting day in March



Getting involved to improve their local park – volunteers at the Cooper Park planting day in March

Community Outcome - Economic: Developing edible public gardens as low carbon community assets & generating interest in REAP's gardening services and compost bike deliveries

Total of 12 sites developed and 14 bike trips through central Elgin – outcome partially met

In Moray, the local Council have had to reduce their provision of flowers and gardening services for the community due to financial constraints. Many flower beds have been grassed over to reduce maintenance costs. Grow Elgin has seen this as an opportunity, and worked with the Moray Council Parks and Lands officer (both at steering group meetings and other meetings) to identify areas for growing for the community. REAP took up an opportunity to gain a licence to use a former golf kiosk as a base for the electric bike, tools and equipment in Cooper Park in central Elgin and is now involved in discussions on the future of the park and initiatives to increase community engagement there. This development will help REAP develop new connections in the Elgin community.



Plants, tools and equipment stored in the REAP kiosk and the gazebo set up outside

The compost bike deliveries provided a talking point towards the end of the Grow Elgin project as these got going, with the REAP cyclist being stopped a few times to discuss the bike and what was going on. Due to the delayed start of collections, we did not make the 75 trips envisaged, but hope that the research and volunteer development put into the project will help this service survive into the future.

Community Outcome - Environmental: Improved community green spaces at 3 sites in Elgin and increased awareness of, and engagement with low carbon living

Total of 12 improved spaces, 10 blogs, improved web traffic and 4 press releases published – outcome exceeded

Grow Elgin worked with various groups in the community to improve 12 public spaces, including 7 schools, 2 sheltered housing/day care facilities the local park and community organisation's gardens. Work was also carried out to consult the community in the South Lesmurdie area of Elgin, with schools workshops, leaflet drops and posters to advertise the local NHS Moray Information Bus, hired by the Grow Elgin project, coming to the area.

is coming to your area- South Lesmurdie

Monday 15th February 2pm-4pm

Drop-in to the Mobile Info Bus by the shops!

All ages, All welcome

What's this all about?!

REAP, the local environmental charity, want to know if people in this area would like to have some FREE activities such as food growing workshops, planting community fruit trees, raised bed workshops or other food growing activities....

Come along to our drop-in session and meet the team.....

- **Free Kids Activities- Sow & Grow**
- **REAP Growing Activities**
- **Find out all about our work in Elgin**
- **Share your ideas - what do you want in your area?**



Gardening Skills? Fruit trees? Raised Beds?

For more info Tel REAP 01542 888070 or email
info@reapscotland.org.uk www.facebook/ReapScotland



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Some comments from MIB session 15.2.16

*Mix growing veg with adventure playground area
Get more colours and plants growing to brighten up dull areas*

Want to learn more about gardening

Trees – blossom in Spring and apples

You have to watch planting apples – we had some planted near us and the kids threw them at windows – small fruit bushes would be better

Lossie Cottages area has central grass area – but it's owned as communal back gardens by the residents under shared access. I'd be up for my area being planted up! Individual 'front' gardens are very shaded & damp

My neighbour isn't fit to grow in his own garden but he grows herbs on the windowsill and he's such a lot of knowledge about gardening

it's too far to go to get local veg from the farm shop unless you get a bus or taxi (veggies are heavy to carry). I'm ok as I've got my bus pass

On Maple Walk there's a free garden we could use for growing.

My gran is great at growing

All the children planted seeds, did some colouring in and one made a windowsill planter. All attendees took away some free seeds and a Grow Elgin leaflet.

Total 8 participants

The above session took place towards the end of the project and REAP hope to follow up on these results in the future, but all engagement in Grow Elgin worked on good communication and consultation through the Grow Elgin steering group, working and networking with groups and through REAP contacts. For example, the Moray Council parks and lands officer regularly attended steering group meetings, and advised us from his long experience on removing labels from plants in public places (as passing ill-intentioned folk dig up specific plants for their own gardens). Instead, we will develop edible trail literature to be picked up from the nearby library and from the web.

Skilling up and courses

Environmental improvements were delivered with workshops on gardening, composting, seed saving and taking cuttings amongst others. We've also run 'where does your food come from' events, soil science and global carbon food footprint events at participating schools and for groups. All the sites involved volunteers, groups and members of the public interacting and focusing on growing in ways they hadn't ever done before.



The 'trowel team' at Greenwards School community garden raised bed

REAP engaged with people working from whatever their level of interest in growing local food. From talking to people about greenfly on lettuces at a stall, to working through deep ecology, soil science and composting chemistry. Two successful permaculture introduction courses were held to pass on skills to volunteers, residents and community groups, helping to deepen interest in low carbon living.



Participants at the first Grow Elgin Permaculture introduction day

Appendix 1 - Finance and Administration

Budgets and Re-profiling

The original project budget was for £82,916 for the year.

REAP spent all of this budget apart from a small underspend of £1,865.10.

During the delivery of the project, we developed underspends in some budget lines including fruit tree purchase and materials. Our CCF officers worked with us to re-profile our budgets to allow us to:

- Extend the post of Project Assistant by 3 months to develop our composting activities, bike deliveries and workshops into 2016 to cover the delays in starting our collection service and work with new groups. This helped us deliver our good composting figures in the New Year.
- Re-allocate salary underspend on salaries to cover the sick leave period of staff member (though overall salary costs were well on target over the year).
- Provide some extra office costs from underspends in fruit tree and materials costs, as these were slightly under estimated over the year.

Administration

Our project got off to a good start as staff were already in place to get started and the momentum for Grow Elgin had been building for a while in the community (as reported above). However, one member of staff was off sick for a few months at the start of the project after an accident. REAP handled this well through our robust policies and procedures, even more essential for a well-run project as ongoing changes in legislation and good practice, especially in employment law, continue to require time and resources commitment from charities such as ourselves.

Good communication from CCF has mean that we didn't experience any particular problems with the budget, reporting and claiming. We valued being able to discuss changes to our budget before submitting a formal request.

REAP staff attended the start up reporting course, the climate change & carbon workshop and one Grampian Peer-to-Peer network meeting. These were all useful for networking and sharing good practice, and the peer-to-peer meeting good for finding out more about projects in our area. Long travel distances and time commitment would make these meetings an occasional treat for REAP staff, but communication outwith meetings and through CCF officers helps us keep in touch.

Appendix 2 - Outputs

Output Grid	
How many advice/information centres – regular drop-in centre, advice surgery etc. - is your project running?	1
How many training sessions where skills and/or information were passed on – e.g. composting training, cooking workshops, etc. – has your project has held.	59
How many events did your project hold, e.g. information fairs, open days, etc.? Do not include events held by other organisations which you have attended.	4
How many staff, volunteers or community members have achieved qualifications through the project – e.g. City & Guilds Energy Awareness, Trail Cycle Leader, etc.	4
How many people were directly employed by your project. Tell us the full-time equivalent (FTE) number of employees (e.g. 3 days per week = 0.6 FTE).	2.2
Is the project is supporting the development of any long-term jobs which are not dependent on CCF Funding? How many?	2
How many people are actively involved in your project – attending groups & workshops, using the project facilities etc.?	565
How many people volunteer their time and energy to keeping the project going – don't forget the members of your management committee or board.	22
How many schools are involved in your project?	7
How many square metres (m²) of community growing space (allotments, poly-tunnels, raised beds, community gardens) has your project brought into use?	314m2
How many tonnes of waste have been diverted from landfill because of the activities of your project?	10.01 tonnes

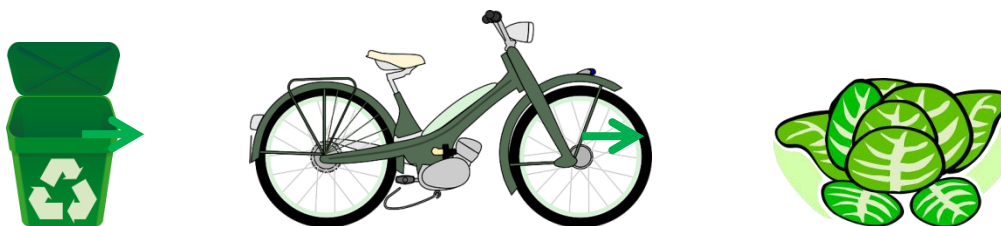
Appendix 3 – Compost Research



Grow Elgin Community Composting and Waste Collection Research

Summary

REAP proposed collecting food waste from certain businesses and transporting it by electric bike to several small scale community composting sites. These sites would have compost heaps or bins already in use for garden waste i.e. 'open systems'. The food would be added to accelerate the heap and reduce carbon by; saving food waste collection and processing, or avoiding food waste going to landfill.



Our research found that this type of composting is allowed, but is regulated and required compliance needs to be in place before activity commences. In order to comply we had to:

- Apply to SEPA for an exemption to compost on a small scale (2m³ bin or heap) at specific sites, at least 21 days before work is due to commence (free of charge) ¹
- Register as a professional carrier of waste with SEPA (free of charge) ¹
- Collect only plant tissue waste i.e. unprocessed fruit and vegetables, peelings, cores and teabags (appropriate material to compost in an open heap, compared to kitchen or canteen food waste)
- Carry out a risk assessment
- Transport waste in robust, impermeable containers, within the robust, impermeable bike trailer which is large enough to act as the required secondary container or bund
- Fill in waste transfer records for every collection, giving a copy to the waste producer and keeping a copy - which may be audited - for two years
- Comply with advice on the final use of compost produced



Project proposal

To help reduce carbon and encourage interest in and knowledge about the benefits of composting, the 'Grow Elgin' project planned to:

- Set up composting sites at community gardens and use compost systems set up at project partner organisations
- Collect food waste locally and transport it by electric bike to these compost sites
- Use the resulting compost on site to support the growing projects



Regulations and Compliance

Collecting waste, composting and use of finished compost are controlled by legislation² that is generally enforced by the Scottish Environmental Protection Agency (SEPA). This includes work carried out by charities and voluntary organisations. They must register as professional waste collectors and apply for exemption from license depending on the type and scale of composting they are carrying out.

There is no charge to charities and voluntary organisations for small scale schemes that comply with regulations, but compliance must be in place and notification of start date must be given to SEPA in writing before any activities begin.

Community composting of garden waste only such as on allotments, attracts no legislation and home composting is not regulated.

Composting regulations

Different regulations apply to 'open' composting (bins or heaps) and 'closed vessel' composting (e.g. Rocket or Ridan composters). The type of composting chosen also affects the type of waste that may be composted.



'open' compost bin system



'closed' Ridan compost system

SEPA advises that kitchen or canteen waste, even if it is 'meat excluded' is not suitable for composting in an open heap. Only unprocessed fruit and vegetables and peelings and cores can be composted this way i.e. 'plant tissue' waste. Discovering this influenced which businesses and organisations we could collect waste from.



REAP applied to SEPA for a Paragraph 12 exemption to The Waste (Scotland) Regulations 2011³ and detailed:

- the type of waste to be composted
- the volume of compost heap or bin (maximum 2m³)
- the location of the heap (supplying an 8 digit grid reference i.e. locating it within a 10m² area)

Application must be made at least 21 days before the activity is to start. The date of the proposed start of activity can be added to the form, which could save delay once exemption is granted, if work is almost ready to commence. SEPA advise that an inspection will be carried out at the start of activities and if there are any complaints or concerns raised during the following 12 months. Exemption is granted for a year and must be re-applied for at least 21 days before expiration.

If the land where composting is proposed is not controlled by the waste collector e.g. owned or leased by them, they must ensure any required planning permission is in place.

Collection and transport of food waste

SEPA is also the enforcing authority for transport of controlled waste in Scotland. Controlled waste includes all commercial, industrial and household waste whether or not it contains toxic or hazardous substances.

Even if only handling such waste occasionally, charities or voluntary organisations must ensure they are listed on SEPA's register of professional collectors and transporters of waste. There is no charge for this type of registration. It is possible to register online via SEPA's website, although we found this system did not work for charities and we had to request a copy of the form which was sent to the regional office in Aberdeen. Notification of registration was received by post.

Record keeping

Two copies of a waste transfer note are filled in at each collection, noting the type and weight of waste collected. One copy is given to the waste producer and one is kept by the collector. Records must be kept for up to 2 years and are auditable. Some projects will also have to return an annual record to SEPA.

Transport containers

Primary containers must be robust and impermeable. Materials are not specified but containers should be repaired or replaced as soon as there are signs of damage.

A secondary impermeable container (bund or drip tray) that can fully contain any leaks from the primary container should also be used. There are regulations governing the size of outer to inner containers, but a local SEPA Environmental Protection Officer advised that at the proposed scale of operation, the requirement is for two separate levels of containment with the outer container a minimum of 1 litre larger than the total volume of the inner container or containers.

The bike trailer is made of sturdy plastic and is leak-proof. It has a volume of 90 litres and could be fitted with 2 leak-proof lidded containers with a total volume of 89 litres.



Depending on the needs of waste producers, REAP could collect a full caddy and leave an empty caddy behind.

Use of finished compost

SEPA also regulates use of finished compost. Compost is no longer considered to be a waste if it complies with PAS100 quality standards and has a market for use. PAS100 specification documents are publically available free of charge on application to WRAP via their website⁴. Compliance requires the compost reaching certain temperatures, daily recording of temperatures, and lab testing of samples for pathogens such as E. Coli 0157. The compost produced in this project will not meet PAS100 requirements and there would not be time to become compliant in the lifetime of this project.

Compost that does not comply with PAS100 quality standards is still considered to be waste and would need to comply with regulation concerning use of waste. It may be possible to register for exemption to use this kind of waste on land, subject to an expert making a statement about risks and how the compost will improve the land.

This would not apply where the compost will be used by a private householder on their garden or allotment, but this would mean further transport and record keeping of the waste and is beyond the scope of this project.

SEPA is seeking advice from their national Waste Team on the use of our compost, to help us find a pragmatic solution for such a small-scale operation. It may be the case that the compost breaks down rapidly in situ and is not spread on site.

References and Further Information

References

1. SEPA. *Application Forms and Guidance Notes*. Available: <http://www.sepa.org.uk/regulations/authorisations-and-permits/application-forms/#Waste> (NB Registration online does not work for charities & voluntary organisations. Local SEPA office can supply a paper application form.)
2. Scottish Government. (2011). *The Waste Management Licensing (Scotland) Regulations 2011*. Available: <http://www.legislation.gov.uk/ssi/2011/228/contents/made>
3. SEPA. (2011). *Paragraph 12 Exemption*. Available: <http://www.sepa.org.uk/media/105248/wmx-tg12.pdf>
4. Waste & Resources Action Plan, Association for Organics Recycling & British Standards Institute. (2011). *PAS 100:2011 Specification for composted materials*. Available: <http://www.wrap.org.uk/content/bsi-pas-100-producing-quality-compost>

Further Information

Zero Waste Scotland Ground Floor, Moray House, Forthside Way, Stirling, FK8 1QZ
Tel: 01786 433 930 <http://www.zerowastescotland.org.uk/>

SEPA <http://www.sepa.org.uk/>
(Elgin) Environmental Protection Officer 01343 547663

Moray Council Waste Monitoring Officer tel 01343 557077

Community Composting Network 67 Alexandra Rd Sheffield S2 3EE 0114 2580 483

WRAP (Waste & Recycling Action Plan) <http://www.wrap.org.uk/>

Appendix 4 - carbon calculations from the original Grow Elgin application

Food Conversion factors – Defra/DECC 2011 conversion factors

Average embedded emissions for each kg food purchased = 3.59 kg CO₂e

CO₂e emissions from sending each kg of food to landfill = 0.45 kg CO₂e

CO₂e emissions from composting a kg of food = 0.1 kg CO₂e

Fruit and Veg average emissions – Audsley et al (2009)

Average Emission factors for supermarket bought fruit and veg = 2.09kgCO₂e per kg

Average Emission factors for allotment grown or locally grown fruit and veg = 0.54kgCO₂e per kg

Composting courses

Increase food waste composted by composting course participants by 20kgs per year

For Composting; 20 kg (food going to landfill) x 0.35 kg CO₂e (0.45kgs emissions from sending each kg to landfill- 0.1kgs emissions from composting food waste) x target group = kg CO₂e

Composting courses 4 new people at 4 courses = 16

20 kgs x 0.35kg CO₂e x 16 = **112kg CO₂e**

Compost deliveries

75 collections of 1kg food waste diverted from landfill = 75kgs

For Composting; 75kgs (food going to landfill) x 0.35 kg CO₂e (0.45kgs emissions from sending each kg to landfill- 0.1kgs emissions from composting food waste) = **26.25kg CO₂e**

Compost bins set up: 10 x 110kgs food waste per person x 4.04kgs CO₂e = **4444kgs CO₂e**

Total composting courses and deliveries CO₂e = 4582.25kgs CO₂e

3. Leaflets

250 waste saving leaflets produced, assuming 20% of people receiving leaflet reduce their waste by 5%,
Baseline

250 people receiving directory and leaflet. Only 20% estimated to change = 50 people

50x 330kgs waste per household x emissions for food waste (4.04kgs CO₂e) = 66660kgs CO₂

Project effect

95% of 330kgs = 313.5kgs

50 x 313.5 x 4.04kgs CO₂e = 63327kgs CO₂

Total leaflet savings = 3333kgs CO₂e

4. Local Growing

Area of land converted to growing local produce in m² x food produced per m² = tonnage

Area of land estimated at 258m² x 3kgs = 774kgs

Baseline emissions = tonnage x average emission factors for supermarket bought fruit and veg
(2.09kgCO₂e per kg)

=774 x 2.09 = 1617.66kgs CO₂e

Project effect = tonnage x average emission factors for allotment grown or locally grown fruit and veg
(0.54kgCO₂e per kg)

Total local growing saving = 1199.7kgs CO₂e

Using current figures

If current revised figures were to be used for carbon calculations, the total saved in the Grow Elgin project, excluding behaviour change from leafleting would be:

New growing land

Target 258m²

258m ² x 3kgs (per m ²) x conversion factor for shop bought food 4.06 =	3142.44
Minus 258m ² x 3kgs (per m ²) x conversion factor for locally grown food 0.54=	417.96
Total carbon savings	2724.48kgs CO ₂ e

Actual grow Elgin land = 314m²

314m ² x 3kgs (per m ²) x conversion factor for shop bought food 4.06 =	3824.52
Minus 314m ² x 3kgs (per m ²) x conversion factor for locally grown food 0.54=	508.68
Total carbon savings	3315.84kgs CO ₂ e

Composting – diverting food waste from landfill

Target 1,175kgs food waste composted, not landfilled

1175 x conversion factor for landfilled food waste 0.723 =	849.525
Minus 1175 x conversion factor for composted food waste 0.006 =	7.05
Total carbon savings	842.475kgs CO ₂ e

Actual Grow Elgin food waste diverted = 1692.4kgs

1692.4 x conversion factor for landfilled food waste 0.723 =	1223.6052
Minus 1692.4 x conversion factor for composted food waste 0.006 =	10.1544
Total carbon savings	1213.4508kgs CO ₂ e

Comparing like with like, Grow Elgin has exceeded its carbon targets