

Communities in Nature: Bristol Community Plant Collection at Bristol Zoo Gardens



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Abstract

This document contains information on the creation of a pilot project to grow *Calendula* (Pot Marigold) in a dispersed collection across the city of Bristol by community groups and coordinated by Bristol Zoo Gardens. As a project of this kind has never been undertaken before it was difficult to predict the end results.

Nine community groups were contacted or came forward to grow *Calendula* plants to be displayed at Bristol Zoo Gardens and also to harvest seed that could be sown the following year. During this process, the groups were trained and supported by the Garden staff at Bristol Zoo Gardens.

Nine species of *Calendula* were also acquired during this period which could successfully gain 'Provisional' status of a National Plant Collection.

The variety of groups meant that expectations and outcomes were varied. These ranged from groups unable to produce plants for display to those who successfully hand pollinated a *Calendula* species that is not usually cultivated in this country.

The evaluation carried out before and after the process showed an increase in knowledge concerning *Calendula* and a desire to continue with the project next year. Additionally, a number of unexpected outcomes were noted in individuals and groups such as an interest in conservation, horticulture, a desire to improve their own environment and community cohesion. Emotionally, some individuals also expressed an increase in confidence and self-worth.

By improving the social role of Bristol Zoo Gardens by creating conservation projects, such as this, benefits not only the organisation but also the groups and individuals that are involved.

Introduction

Bristol Zoo Gardens Head of Horticulture, Eddie Mole, has been keen to set up a 'Dispersed Collection' of annual plants at Bristol Zoo Gardens for several years... Annual plants are under-represented in Plant Heritage's National Plant Collections for a number of reasons: Many people consider them 'too easy', while others see that holding such a collection would actually increase the amount of time needed to maintain a collection (sowing, seed collection, paperwork etc.). By growing plants in a 'Dispersed Collection,' all records could be managed centrally and the chances of cross-pollination from growing different species of the same genus would be reduced.

By asking community groups from around the city to grow the plants and collect the seed for the project it was hoped that Bristol Zoo Gardens would be able to engage with an audience that may not necessarily visit the Zoo or a Botanic Garden. Through the project, the aim was to raise awareness of the importance of biodiversity, conservation, the natural world and to promote an interest in horticulture.

Calendula was always favoured as an ideal plant to choose for such a project as the genus was of a manageable size and it was colourful, bright and easy to grow. It also has the added benefit of being a very versatile plant with medicinal and domestic uses.

With the support of Botanic Garden Conservation International and the Calouste Gulbenkian Foundation, Bristol Zoo Gardens was able to pilot the dispersed plant collection project across Bristol in 2012.

This report will cover the processes involved in setting up a pilot project of a 'Dispersed Plant Collection' of the annual flower *Calendula* by using community groups in the city of Bristol. It will also analyse the successes and lessons learned over the 7 months the project ran and the legacy of the project on an individual, organisational and countrywide scale.

1. Process of developing project

The project began later than expected as a project co-ordinator had to be found for the role. Starting work the week commencing 5th March 2012, the time constraints of a tight schedule were already apparent (See [Appendix 1.1 for Gantt chart of events](#)).

A number of key processes had to be completed as quickly as possible. Namely:-

- Recruit a Plant Collection Administrator
- Source the seed for the project
- Identify groups to participate in the project
- Engage the groups
- Prepare training materials

It was hoped that these three tasks could be completed by the school half-term of the week commencing 9th April. This week was seen as the most favourable to deliver training to the groups involved as the group leaders from schools were more likely to attend. All growing equipment and seed could then be delivered by the end of April.

Nine groups were identified and approached (full details in [Section 2](#)) and growing equipment was ordered. It was hoped that each group would grow 30 plants for display in Bristol Zoo Gardens over the summer and keep 10 plants at their site to collect seed from. A 'celebration' reception would be held in September at the Zoo to bring the community 'Growing Partners' together and thank them for their involvement in the project.

As this project also had the objective of securing National Collection status, a number of organisations were approached to acquire examples of *Calendula* species. Holding a National Collection requires that 75% of the species listed in the RHS Plant Finder are grown. Currently, RHS Plant Finder only shows *Calendula arvensis* and *C. officinalis*, with *C. meusei* last listed as growing in 2010. The Plant List (www.theplantlist.org), an international working plant list, shows 11 accepted species of *Calendula*, which was used as the target to obtain for the project.

By requesting these particular species seed from the Millennium Seed Bank and through anonymously requesting through Botanic Garden Conservation International Plant Search (www.bgci.org/plant_search.php), along with two common species from commercial outlets, we were able to obtain 9 species.

These were:-

- *C. arvensis* (Commercial outlet)
- *C. eckerleinii* (United States Department of Agriculture)
- *C. maroccana* (United States Department of Agriculture)
- *C. meusei* (United States Department of Agriculture)
- *C. officinalis* (Commercial outlet)
- *C. palaestina* (Millennium Seed Bank)

- *C. stellata* (ÖBG– University of Bayreuth, Germany & U.S.D.A)
- *C. suffruticosa* (United States Department of Agriculture)
- *C. tripterocarpa* (ÖBG– University of Bayreuth, Germany & U.S.D.A)

As the species seed from United States Department of Agriculture arrived a few months in to the project, the decision was taken to give the community groups involved in the project the two species that were commercially available and varieties of the plant that were also commercially available. The exception to this was Upper Horfield Community Garden (see [Section 2.ix](#)).

As the 'Training Pack' for the community groups was being compiled (See [Appendix 1.2](#)), a local illustrator was used to create a logo and artwork for the project. The name 'Bristol Community Plant Collection' was also chosen. As the project was new, it was hoped that by creating a 'visual brand' for the project would make the community groups feel part of something tangible. It was also thought that it would also be useful for creating publicity materials for a number of events that were pencilled in over the summer months.

It was hoped that the training session, held at the Bristol Zoo Gardens Nursery at Hollywood Towers Estate, would be attended by most of the groups. Due to previous commitments and two groups cancelling on the day, only three of the community groups attended. This meant that completion of training for all the groups did not occur until the beginning of May, a few weeks the growing equipment was delivered. The remainder of the groups received training at their site on a mutually acceptable day. The exception to this was Severn Project who declined training after they were unable to visit the training session at Bristol Zoo Garden Nursery, as they already grew *Calendula* on their own site. Site visits were planned throughout the project as well as regular emails to the lead contacts of each group.

A Facebook page was created for the project in the hope that participating groups could share information and interested parties could follow the project. The project also planned to participate in a number of events throughout the summer as promotion. They were:-

- Bristol Garden Life Show – Broadmead Shopping Centre, Bristol.
- International Biodiversity Day – Bristol Zoo Gardens
- Two talks at the Plant Heritage Marquee – RHS Hampton Court Flower Show.

For these events, displays, interpretation and presentations were created. It was hoped that these events would not only promote the project and raise awareness and possibilities to secure funding for the following year. The project was also asked to give a presentation about its work for Bristol's entry to the RHS Britain in Bloom competition. Due to its success at the event, the Bristol in Bloom committee asked the project and one of its participants (Upper Horfield Community Garden) to meet the jury members of the European competition 'Entente Florale', to talk to them about the work that was taking place and its community involvement and conservation implications (Bristol was later awarded a 'Gold' in this competition).

Eddie Mole, Head of Horticulture at Bristol Zoo Gardens, also presented the project as part of the 'Growing the Social role of Botanic Gardens – Towards a new social purpose' workshop at the Sixth European Botanic Gardens Congress (Eurogard VI) with Dr. Vergou and Julia Willison from BGCI on 29th May 2012.

Due to the school summer holiday, the 30 plants grown for display in the zoo were collected from the community groups in July. End of project surveys were given to the schools at this time with the other groups receiving them in September. The project team worked in tandem with the Bristol Zoo Gardens Department to ensure the area for the *Calendula* display was made ready, planted and that labels were produced with the correct information about the growers and the plants.

The Garden Department also grew a number of the species seed that was received from the United States Department of Agriculture for display in the zoo and for production. After researching best practice for hand pollination, to ensure that the species seed grew 'true' the following year, a number of wooden cages with insect mesh were constructed by the Zoo's Maintenance Department.

Two of these cages were delivered to Upper Horfield Community Garden for the *Calendula stellata* the group were growing for the project.

During August and September, contact was maintained with groups that were not school based. Initially, this was thought to be the 'less busy' time in the project'. In fact, regular visits to some of the groups increased due to the filming of a documentary by Ling Lee on behalf of BGCI and also accompanying Dr. Vergou from BGCI when visiting participants.

Preparation for the end of project reception also took place at this time. This involved sending invitations to all the groups involved in the project and to organisations that supported it throughout the process. A 'Bristol Community Plant Collection' display was also created for the Bristol Zoo Gardens 'Family Garden Show Weekend' which followed the Friday night reception. This final display had a photo display of the groups involved, the uses of *Calendula* with donated *Calendula* products and also use artwork from a children's art group which took place at an outreach session held at a Bristol community centre; (see [Appendix 1.3](#) for photos).

2. Selection of the Growing Partners & Outcomes

As this project is based upon a dispersed collection, the 'Growing Partners' were selected from across the city using a variety of methods. Initially, it was thought that the project would consist exclusively of schools but with the limiting factors of time and the spring and summer school holidays it was decided that a broader range of community groups would be approached. The ideas of targeting areas of 'deprivation' were also considered although this was not an exclusive factor.

i) Avon Club for Young People (ACYP) – *Calendula 'Orange King'*

Avon Club for Young People (ACYP) is a youth groups which caters for children aged from 8-19 years old. The club is based in Lawrence Weston, in the north-west of the city. It is located in the Super Output Area (SOA) of Lawrence Weston West. The Indices of Deprivation 2010 (www.bristol.gov.uk/sites/.../key%20findings%20for%20Bristol.pdf) show that this area falls in the bottom 10% in the country regarding 'education, skills and training deprivation' and 'crime and disorder'.

It is usually open 4 nights a week and offers the usual range of youth club activities such as football, pool and table tennis. ACYP already had links with the Zoo as one of its Patrons is a member of the Clifton Business Association and the Bristol in Bloom board. ACYP were approached early on in the planning process to be part of the project and accepted. As they only operate in the evenings it was thought appropriate that Mike Adams, the Horticultural Manager at Bristol Zoo Gardens Nursery, who was close to the area geographically, should visit the group and deliver the training session on site. The training was given to two of the group leaders, who would in turn teach the children who were going to be involved with the project.

As the group operated in the evening it was difficult to communicate during office hours. The plants were collected for display in the zoo although they were grown in a large tub and not the individual plants as specified in the project paperwork and emails. Due to confusion with staff on site at ACYP and the delivery driver, at the time of pick up all plants were collected and so seed collection did not take place.

The group did attend the end of project reception, although consent and feedback forms weren't received. This made it difficult to calculate the number of children involved in the project and any benefits that they may have received from the process.

ii) Bannerman Road Children's Centre - Easton – *Calendula 'Porcupine'*

When Robinson House pulled out of the project early in the process, Bannerman Road Children's Centre was suggested. The Centre is located in Easton in the central area of the city and scores very highly (67.6) in the deprivation indices making it one of the most deprived areas in England.

Lisa, an Early Years Practitioner, would be the project lead with her group of 3 and 4 year olds. Although it would be difficult to collect data and feedback from this particular group in the same way as the other

community groups, it was hoped that alternative approaches such as art could be used as a method of engagement.

After successfully sowing the seeds with the thirteen children in the group, the pots were moved to the outside area of the centre. During the weekend of the 19th/20th May, intruders broke into the centre and turned over all the modular trays that the plants were growing in. Lisa was unable to save any and a replacement packet of seeds were sent. Lisa noted in the email sent on the 21st that, '*Intruders are a regular occurrence/annoyance for us here!*'.

The seeds were sown again and once more the centre was broken into on the Bank Holiday weekend of June 2nd – 5th. All of the plants were destroyed. Lisa requested new seeds again and emailed at the end of June that the plants were now being grown inside to avoid any further problems. At the end of July another email was sent to say that while Lisa was on annual leave other members of staff neglected to water the plants and the third batch had died. It was mutually decided by both parties that the group would not grow any further plants due to the vandalism, issues with watering in Lisa's absence and the amount of time spent on the project.

All of the parents of the children involved signed and returned the Consent Forms for the project although no replies were received from the invitations sent via the Children's Centre for the Garden Reception at the end of the project.

iii) Cabot Primary School - *Calendula officinalis*

Cabot Primary School is situated in the area of St. Pauls (Ashley Ward), close to the central area of Bristol. The area has been associated with many social problems over the years. Cabot Primary was identified as a possible school to be invited to take part in this project using information on the Bristol City Council Ward information website (<https://www.bristol.gov.uk/wardfinder>).

In the 2010 Deprivation Indices, the SOA of St. Agnes, where the school is located, was in the bottom 10% in the country in the key areas of Income, Employment, Crime & Disorder, Living Environment, Income Deprivation Affecting Children and Older People.

An email was sent to the schools general email address and Jessica, a teaching assistant who also runs the Gardening Club, replied to register her interest. Jessica had previously worked with BCTV (Conservation Volunteers) and was very enthusiastic about the project. Jessica was able to attend the training sessions at the Nursery at Hollywood Towers Estate and was given the *C. officinalis* as it was thought that growing this species would have a greater additional educational value for the group. The Gardening Club was attended by five girls and two boys who studied at Key Stage 2 level.

Delivery of the growing equipment took place on 23rd April and Jessica requested smaller tubs for growing the plants to collect seed from as they would be easier to transport when she took them home over the summer holiday. Jessica sent regular emails and pictures (see [Appendix 1.4](#)) about the plants and I visited the Gardening Club after school at the beginning of the summer term to talk about the plants, the project and their school garden.

The children were excited about growing plants for Bristol Zoo Gardens although Jessica did write in an email dated 11th June 2011 *'I haven't really spoken to the children about the project in detail...They know we're growing the Calendula for the zoo and that we're collecting the seeds but that's it.'* The visit to the school gave an opportunity to talk about the project in greater depth.

Jessica also talked about when the Gardening Club outside activity was curtailed due to bad weather, the children joined the Art Club members and drew pictures of *Calendula* or carried out research about the plant. She also noted an increase in interest in the school garden at lunchtimes by other pupils who knew that the Gardening Club was involved in a project for Bristol Zoo Gardens.

Seed for the project was collected by Jessica from the *Calendula* plants that she took home to look after during the summer holiday.

All of the Consent Forms and surveys were completed by Cabot Primary School although only one pupil attended the Garden Reception with her family. At the event Jessica also said that she would like to be involved in the project next year although it would be unlikely it would be with Cabot Primary School as she is now working part-time in order to study.

iv) Chard Court - *Calendula 'Fiesta Gitana' & 'Sunset Buff'*

Chard Court is a 50 years + residential accommodation site consisting of 32 flats. The Bristol City Council Housing Manager for the complex was sent the email from the Neighbourhood Partnership about the project. The site was in the process of having shrubs removed from the central garden so that residents could create their own areas. The housing manager sent on the email to Dave, a resident at Chard Court, who discussed taking part in the project with several other members. A group of eight residents came together to form the 'Chard Court Growers' with 5 of the members attending the training course at HTE.

The initial *Calendula* variety, 'Fiesta Gitana', was unsuccessful as the plants were grown inside and became tall and drawn. They were then placed outside and were unable to cope with the heavy rainfall that followed. A replacement variety was sent and successfully germinated, with the growing them outside.

Chard Court was visited several times over the course of the project and involvement in the project had several unexpected outcomes. From an interview by Dr Asimina Vergou from BGCI dated 7th September 2012, members of the group talked about having no previous interest in gardening, but now have their own garden space. The group also talk about how they have been brought together as a community by the project,

'Before we would all just be in our flats, we may say 'Hello' when we were in the corridors or while we were doing a bit of washing but now we all get together for our cups of tea and coffee and we all do our little bits of our gardens and we discuss it. I don't think we would have done it if we didn't have this project.'
(Mrs W.)

This was confirmed by group member Mrs C. who said that the group met up 'every day' for the project.

Chard Court also demonstrated a need to have a greater understanding of plants by devising their own small experiment. They gave one tub of plants plant feed and didn't feed the other (See [Appendix 1.7](#) for photographs). This curiosity could probably be linked directly to the project.

Chard Court was able to return all of the plants requested for display and also collected a large amount of seed. All surveys and consent forms were also returned and all members attended the Garden Reception in September.

v) Holymead Junior School – *Calendula 'Princess Mix'*

The Neighbour Partnership for the south-east of the city was contacted to ask if they knew of community groups that may be interested in taking part in the project. This produced an overwhelming response from a variety of organisations.

Sam from Holymead Junior School emailed to register his interest with his Year 5 students (31 pupils). As he was unable to attend the training session in half term, I gave a brief talk through of the sowing process when the materials were delivered and also gave a talk to the class about the plant and the project on the 10th May. Giving a talk to the class about *Calendula* and the project was not as successful as hoped for a number of factors. Sam had sown the seeds with a much smaller group the day before so there was no practical aspect of the process for the children to engage in. The size of the audience was also large with many of the group disinterested in 'flowers'.

It was difficult to maintain lines of communication throughout the project due to holidays and working hours etc. However, all of the plants were grown successfully for display at the Zoo.

Although there were many positive email exchanges before the project, it was difficult for Sam when chasing Consent Forms and confirming pupils name to send invites to the Garden Reception. As his class had moved up a year, details and requests were forwarded on to the new form tutor but no reply was received. The baseline survey was completed by the pupils but as the post project survey wasn't there is no real data to examine. Sam did complete a post project survey himself stating that he wanted to take part in the project again and apologising for not attending the Garden Reception.

vi) Robinson House Care Home – *Calendula 'Candyman Orange'*

Robinson House Care Home specialises in dementia care and nursing and has 64 residents. It is located in Stockwood, in the south-east of the city and also contacted us through the Neighbourhood Partnership. Caroline who is the Activity Co-ordinator for the residents was very enthusiastic about the project as the home had just had its central garden repaved during building work and was currently empty.

Caroline confirmed that she would be able to attend the training session at the Nursery at Hollywood Towers Estate but had to cancel that day due to work commitments. On the 12th April, we received an email to say that Robinson House would no longer be able to take part in the project as the volunteer who worked in the garden had left at short notice. The door was left open for the group and the volunteer (Mrs. S.) contacted me directly to say that they would now be able to take part in the project.

Due to the delays, training was given on site to Caroline and Mrs S. so that they could supervise residents sowing at a later date. Meeting both in a relaxed setting gave me a chance to get to know both of them as individuals and also the dynamic between them.

Mrs S., 84, had been visiting the home to see her husband who suffered from dementia until his death in December 2011. Since then she has worked as a volunteer looking after the gardens using her previous experience as a regular entrant to the Bristol Flower Show and member of the Stockwood Gardening Club. Her interest in the project was horticulturally driven.

Caroline, as an activity co-ordinator, was more interested in the therapeutic aspects of horticulture and dementia patients. Involving patients in the project had many issues to consider such as short attention span and health issues when completing simple tasks such as watering. However, with adaptations to the garden and supervision she felt that the benefits would outweigh these problems. In conversation, Caroline relayed how 'the need to nurture' in dementia patients continued to the later stages of the disease. Although the patients may not remember planting the seeds, they still want to water and tend to it. Caroline cited the example of Bill, who lived in the home, who kept a runner bean plant in his room.

In an interview with Mrs S., she also highlighted the benefits of horticulture and the project. Many of the residents liked to see the orange colour of the *Calendula* and one talked of the flower growing in her parents' garden when she was young. Mrs S. also stated that being involved with the project on a personal level was 'fantastic to feel useful again after the death of her husband'.

There were a few issues throughout the process with Robinson House with Mrs S. contacting the project direct and not through Caroline, the main contact. This was resolved quickly by copying Caroline into all communication with Mrs S. or contacting Caroline before I replied to Mrs S. when dealing with information or requests directly linked to the project.

Robinson House grew all the plants as requested and returned a large amount of collected seed. Collection of the plants was delayed by a week so that the plants were in the garden while the home was judged for a Gardening competition run by the parent company, Brunel Care. Robinson House won a first prize and two seconds in 3 separate categories.

Mrs S. has also been talking to other community groups about her experience of the project,

'Just got back from the Whitchurch Care home on the old Millers Coach site. I go to give them a talk every 3 months. Today, it was growing Marigolds for the Zoo they told me their memories of visits, and the flowers they grew.'

Email Dated 31/8/2012

Caroline and Mrs S. returned all relevant paperwork and responded to emails and requests for photos etc. promptly. Caroline and two of the residents were able to attend the Garden Reception.

vii) Severn Project - *Calendula arvensis*

The Severn Project is a Community Interest Company which helps those in recovery from alcohol and drug addiction. Founded in 2010 by Steve Glover, it uses horticulture as therapy and also to train and educate. This project has turned into a successful social enterprise and grows salad leaves for restaurants in the Bristol area.

Steve Glover emailed to express his interest in the Severn Project working with the Zoo on this project after seeing an email from the Neighbourhood Partnership. This seemed like an interesting and exciting fit between the group and the project. Steve mentioned that it was important for the group to show 'social integration' and taking part in the Bristol Community Plant Collection would be an example of this. Members of the Severn Project initially said they would be able to attend the workshop on April 13th but had to cancel due to commitments at their own site.

As the Severn Project is mainly based in Keynsham, outside of Bristol, growing equipment and seeds were taken to another one of their sites in the south of the city on April 23rd. At the beginning of May, Steve requested new seeds as the first packet was mislaid.

Unfortunately, for various reasons we were not able to maintain contact with Steve and unfortunately the involvement of Severn Project in the Bristol Community Plant Collection project did not continue.

viii) Stoke Bishop Church of England Primary School – *Calendula 'Apricot Pygmy'*

Ms. W. from the Eco-Club at Stoke Bishop Primary School initially contacted the Zoo through the Avon Gorge and Downs Project, expressing an interest in any activities that may happen in the future. Stoke Bishop is in the north-west of the city, is an affluent area. The Super Output area has a very low score of 4.3 on the Deprivation Indices compared to Cabot Primary School ward which scores 50.5.

Ms. W. was contacted with details of the project and as she was unable to attend the training session at HTE, training was given to both Ms. W. and the pupils in the Eco Club during lunchtime at the school on 27th April (See [Appendix 1.6](#) for photographs). The Eco-Club was attended by 6 girls and 1 boy who completed the baseline survey during this session.

Feedback from the groups was positive:-

'We have now planted all of the seeds, over a two week period. On the first batch we now can see little sprouts of green appearing, and the children are loving the project. Eagerly awaiting growth signs from second batch! We now have 5 extra children in our Eco-Club as a result of this project!'

Email dated 17th May 2012

On 26th June, Ms. W. sent another email to say that she was leaving the school at the end of the term and all of the plants and equipment for the project should be collected. Trying to re-establish contact with the school after the summer holidays was unsuccessful and the Post-project survey or consent forms were obtained.

ix) Upper Horfield Community Garden – *Calendula stellata*

Upper Horfield Community Garden (UHCG) is based in the north-east of the city and has been running for 5 years. It has turned a disused basketball court at the rear of a church into a productive garden consisting of raised beds tended to by locals interested in food production.

UHCG was suggested as a possible 'growing partner' by a member of the Civic Society at a community event. After initial contact with details of the project, the group discussed their possible involvement at their monthly meeting. Eight members of the group of twenty asked to be involved.

Helen was able to attend the training session held at the Nursery at Hollywood Towers Estate. After talking to her about the project and gauging her enthusiasm and the groups' collective horticultural knowledge it was decided to give the group half of the *C. stellata* species seed (40) from those received from the Ökologisch-Botanischer Garten – University of Bayreuth, Germany. It was decided that as the group only received a small amount of seeds they would not be required to return plants to be displayed at Bristol Zoo Gardens. We were also unsure of the results that would be achieved and did not want to increase the pressure of expectation.

Helen divided the seeds between the eight members of the group who wanted to be part of the project to grow at home so that they would not be neglected on site and could be observed each day. The results were very positive from the group which an email from Helen supported:-

'I'm pleased to report the others in our Upper Horfield Garden club are reporting successful germination of Calendula stellata....An interesting aside is that I found it made people in the club quite proud they were selected for this challenge, and so far I even had one grower call me early at 9AM one morning last week with the exciting news that one of the seeds had actually germinated, which we're very pleased about. I think this project, although the aim was to help educate people better, has actually given our members extra confidence in themselves and their abilities and I hope it helps them feel that the work they do, while unpaid of course, is still very valuable.'

Email dated 14th May 2012

Three of the group kept notes on the progress of the plants (See Appendix 1.7) and Helen kept in regular email contact throughout the project.

As UHCG were growing a *Calendula* species for the project they were also provided with 'plant cages' to ensure that the plants did not cross pollinate with other *Calendula* at the site. Plants were returned to site before flowering to be placed in the cages and hand pollinated.

UHCG returned 300 seeds from the project and also returned all corresponding paperwork.

3.Outcomes of Project

i)Plant Collection

We were able to obtain 10 of the 11 recognised species of *Calendula*, which was a major success. Unfortunately, the species obtained from the Millennium Seedbank , *Calendula palaestina*, failed to germinate. This is a comprehensive botanical collection of the genus and holding 9 means that Bristol Zoo Gardens are still in an excellent position to obtain 'Provisional' National Plant Collection status once the relevant paperwork has been completed.

As this is the first 'dispersed' National Collection, Plant Heritage would have to re-visit their guidelines for keeping a collection so that this new method of growing could be taken into consideration. The Plant Heritage blog talks about the project and says:-

'As many people do not have the space or the time to look after a whole National Plant Collection, the idea of a collection dispersed between members of a group with a central person to coordinate and report on the collection is a possible way forward.'

[\(http://plantheritage.wordpress.com/2012/04/03/care-in-the-community/\)](http://plantheritage.wordpress.com/2012/04/03/care-in-the-community/)

ii) Community Groups

The outcomes for the individual groups are discussed in Section 2 but there are also the outcomes for those involved in co-ordinating the project and similar outcomes for the groups overall.

1. All of the groups apart from Severn Project and Bannerman Road Children's Centre produced plants for display in the Zoo.

2. Individuals in various groups demonstrated an increase in confidence, pride and satisfaction in participating in the project (Mrs S.- Robinson House - [Section 2.vi](#) and [UHCG - Section 4.iv](#))

3. The emotional connection with some of the groups was completely unexpected on both parts.

'...with Emma is she is now part of our family even if we don't really know her.' Mrs W.- Chard Court.

Mrs S. from Robinson House Care Home is in contact on a regular basis even though she is now in America with her daughter (email dated 8/10/12).

4. Both Chard Court and Robinson House Care Home increased the amount of planting at each location during the process and improved their own environment.

5. During the selection process, a number of community groups were approached in the south west of the city which we received no reply back. Heather Williams, the head of the Neighbourhood Partnership in this area was also contacted but none of her leads were fruitful. During the project we have since been approached by groups in this area that are interested in taking part in the project in the future.

Using the Neighbourhood Partnership for the South East was extremely successful with a number of groups having to be turned down. They have all asked to be kept on file for next year.

They include:

Eco-Club – St Bernadette Catholic Primary School - Hengrove

Arnos Park Action Group (APAG) - Brislington

Hillcrest Primary School – Totterdown

Air Balloon Hill Primary School – St George

Way Out West (WOW) – Community Residents Group – Bedminster

Parson Street Primary School – Bedminster

Little Hayes Nursery - Fishponds

4. Evaluation Results

'Growing Partners' in this project were all issued with a Baseline survey at the start of the project and a Post-project survey once the project was at an end (See [Appendix 1.8](#)).

It was hoped that the Post-project survey would show a gaining of information of *Calendula* and a National Plant Collection and a possible change of perception regarding Bristol Zoo Gardens. A question on whether the participant had ever visited Bristol Zoo Gardens and frequency of visit as this may have some impact on their perceptions.

Analysing both forms, it becomes apparent that issuing the survey as part of the Bristol Community Plant Collection has had an influence on the answers given. Many refer to plants in the Baseline survey that may not have answered that way if asked by a third-party in an unconnected way.

An extensive description of *Calendula* and its uses, as well as a definition of a National Plant Collection was given to groups at the start of the project in the 'Growers Pack'. Any 'incorrect' answers or a lack of understanding in certain areas in the Post-project survey could also reflect on the usefulness and relevance of the information issued.

Only four groups completed both the Baseline and Post project survey.

i) Cabot Primary School – Gardening Club

Eight surveys were returned from Cabot Primary School with one from the Teaching Assistant and the remainder from pupils.

In the Baseline survey, the first question regarding perceptions of the work of Bristol Zoo Gardens gave a mixture of results.

- 4 said that Bristol Zoo Gardens look after both endangered animals & plants.
- 2 said that Bristol Zoo Gardens looked after endangered animals.
- 1 said that Bristol Zoo Gardens looked after endangered plants.
- 1 pupil highlighted the educational purpose of the Bristol Zoo Gardens

None of the group were able to give a definition of a National Plant Collection but all were able to give a basic description of a *Calendula* plant. This was due to Jessica, the Teaching Assistant, talking about the plant and the project before the Baseline survey was issued. This is highlighted by all pupils referring to the plant as being yellow in appearance. A number of pupils also noted erroneously that the plant was rare.

In the Post-project survey, nearly all participants saw Bristol Zoo Gardens as a place that looks after endangered plants and animals. They also correctly defined a National Plant Collection as holding 75% of a plant species. The groups' knowledge of *Calendula* also improved through the project with awareness of the medical and cosmetic uses of the plant as well as its common name. Four of the group also identified that the petals were edible.

As the pupils were taught as a group it was expected that they would produce very similar answers.

ii)Chard Court

The initial baseline survey returned from the 8 participants had many blank spaces. The first question about the thoughts about Bristol Zoo Gardens only returned four answers:-

- 'Animals are kept to guard from extinction'
- 'Families can visit and plants can be grown for various requirements'
- 'The public can view plants they are not likely to see elsewhere'
- 'A beautiful place. I love walking round them. Sitting and having a picnic'

The second question on their understanding of a National Plant Collection were also left blank or answered by: 'A very good idea'.

Only one member of the group was able to give any information about *Calendula* stating that it was an annual flower known as an 'English Marigold'

Four members of the group had never been to the Bristol Zoo Gardens and the most frequent visitation being 'Once a year'.

The post project survey showed that, apart from one participant, the group was still unaware of what a National Plant Collection with some describing a 'dispersed collection'.

A number of participants also mistakenly thought that *Calendula* was going to become extinct. This could be because of confusion regarding the conservation information given during the project and also information about the *Calendula maritima* which is on the IUCN Red List critically Endangered species (<http://www.iucnredlist.org/>).

It is interesting to note that the individual who knew the most about *Calendula* in the Baseline survey gave the correct information about the National Plant Collection and gave the most extensive answer regarding *Calendula* in the Post project survey. All participants said they would like to take part in the project next year and could think of nothing that would improve their experience of the project.

It is also important to highlight some more complex sociological aspects of the project that were not mentioned in the evaluation but became apparent in the group interview by Dr Asimina Vergou dated 7th September 2012. These points overlapped with the surveys question about the perception of Bristol Zoo Gardens as an organisation and themselves as individuals and as a group.

When talking about the project, Mrs W.said:- *'{the project}... is involving the public especially sheltered accommodations and not just ordinary high class people'*.

Mrs C. also stated: *'It's giving the bottom people experience.'*

This could be interpreted that the group perceive the plant conservation, horticulture and possibly even Bristol Zoo Gardens as an area perceived to be not something that people from a certain segment of society would usually be involved in. This is poignantly highlighted in a statement from Mrs W. :-

"I knew that there are things that are going extinct. But I didn't think much about it to be honest. You just assume that someone else is going to do something about it, don't you?"

iii)Robinson House Care Home

Due to the nature of Dementia the residential participants of Robinson House Care Home were not surveyed relying instead of anecdotal evidence (See [Section 2 vi](#)). However, Caroline , Activity Co-ordinator, and Mrs S., volunteer, did complete the Baseline and Post project survey.

In the Baseline survey both identified the conservation role of Bristol Zoo Gardens and as a place to see animals. Due to her interest in gardening Mrs S. was correctly able to define a National Plant Collection although Caroline did define a 'dispersed' collection. Both were able to give information about *Calendula* such as description and use in companion planting.

In the Post project survey, Caroline was able to expand on her definition of Bristol Zoo Gardens to include floral displays, conservation projects and education projects. When describing a National Plant Collection, Caroline still described a 'dispersed' collection but did identify the importance of conserving plants. They also demonstrated a greater knowledge of the uses of *Calendula* as a natural dye, culinary herb and its medicinal value.

Both participants enjoyed being part of the project. Caroline stated 'We especially enjoyed working in a project with a specific outcome; it gave a greater purpose to what we were doing'. It was also suggested that they would have liked to work more closely with other participating groups especially inter-generational work that would benefit both parties.

iv)Upper Horfield Community Garden (UHCG)

During the course of the project a number of members of the group left due to issues with the owners of the site. This meant that only six survey Post-project surveys were completed.

In the Baseline survey many identified the conservation and recreational nature of Bristol Zoo Gardens as well as the horticultural aspects such as labelling of plants and advice given by the gardeners on propagation etc.

Regarding the understanding of a National Plant Collection none of the participants were able to define what it consisted of or groups such as Plant Heritage. A few identified it as a collection of plants specifically indigenous to the United Kingdom, a view that did not change by the Post project survey.

Although all demonstrated some knowledge of *Calendula* before the project, it is impressive to see the depth of knowledge gained and displayed in the Post-project survey. Many learnt how to obtain seeds from a plant, protecting the *Calendula* species from cross-pollination, the growing habit of *Calendula stellata*, awareness of other species in the genus etc.

When reflecting on the project two of the participants raised the issue that information concerning the projects objectives and goal was slow to filter through. This was mainly due to all information for the group coming through the main contact and only really becoming clear when hearing the speeches given at the Garden Reception. On reflection, meeting the whole group at the beginning of the project and not relying solely on the main contact may have avoided confusion but was difficult due to time constraints.

All involved, apart from one, said they would like to take part in the project again. The woman who said she wouldn't take part again cited the: '... amount of time to complete, plus energy for someone already committed to their gardening plot...', but does go on to say, '...but I enjoyed it and learned a lot about cultivation and plant management, working in a team, deadlines and cooperation.'

One participant said of the project, "I feel it's an honour to have taken part in such an interesting project'

5. Lessons learned & Recommendations

From the pilot year of this project, we can assess what have been the most successful aspects and what areas could be improved.

- **A more robust selection process would be needed next year.** A simple application form (See Appendix 1.9) could be used so that potential groups could clearly see what is expected from them in regards to plant growing and seed collection and from us in the form of training and support. A visit to their site before the project will also be helpful to establish face-to-face contact. This would be making future communication easier as you 'know' the person. It would also be an ideal opportunity to learn a little about the motivation for wanting to be part of the project. By doing this, we can have a better understanding of how to fulfill their needs and if they are suitable for the project.
- **Simplification of consent forms and surveys.** Getting groups to fill in the baseline survey while I was present was the most successful way of getting paperwork returned. A few of the groups questioned the length of the BGCI consent forms even though they were not complex in their requests. A double sided form combining both consent and an initial baseline survey would be ideal for participants.
- **Communication between groups.** Although the Facebook site was set up initially for groups to 'feed' into, this site only posted information from the project coordinator. Many of the older participants distrusted social media and those under the age of 13 are not supposed to use it. At the end of the project Caroline, Activity coordinator at Robinson House, said that it would have been good to be in touch with the nearby groups at Chard Court to share experiences. This could be initiated by 'across group' training and events in the future.
- **More training sessions.** A number of participants said that they would have liked to attend the training session but were unable to go on that particular day. In future a number of options could be offered when all members of the group could attend.
- **Improvement of training materials and support.** Some of the school groups admitted to not looking at the training material at all. By providing a large A1 poster for the classroom with details to fill in such as first leaves, first buds, first flowers etc., the project and plants will still stay relevant to the class/group. It could also show information that is directly applicable to Key Stage 1 & 2 Science that deals with Plants and their lifecycle.
- **Starting the project earlier.** This would benefit schools as pupils would be able to see the whole lifecycle of the plants before they go on their summer holidays.

- **Targeting 'older' groups for involvement in the project.** These groups seemed to benefit the most from this project for various different reasons and were not really considered as a targeted group in the initial selection process.
- **A need for differentiation.** There is a need to use more targeted approaches to satisfy the needs of groups within the project. School children are limited by the school holidays and the time they have available, while some older participants and those in residential groups can contribute more on a regular basis to the project. The outcomes and expectations from both types groups would also be different. Leading to...
- **'Varieties' to schools and 'species' to those who live on site.** It became apparent from the unpredictable weather this year that leaving the more 'valuable' species at school untended over weekends and half term means that plants can go un-watered and die.
- **Making the project sustainable for the future.** The most immediate and urgent aspect of this project is the need to secure funding for the following years to come. The project over the last 7 months has been demanding and time consuming for not only the 'Plant Collection Administrator and Researcher' but also on the Garden Department and other areas of the organisation. It is hoped that implementing the lessons learnt and recommendation, demands on time and resources would be reduced. Without future funding this project would no longer be viable.

6. Budget – Projected & Actual

Project Activity	Projected Spend	Match Funding BZG	Actual Spend
Attendance at BGCI Workshops 1,2 & 3	£180.00	Staff time GIK Staff Car & Petrol GIK	£197.21
Project Officer	£6300.00		£6300.00 (ongoing)
Growing Equipment For Community Groups	£600.00		£547.01
Internal half-day Workshops (inc Refreshments)	£120.00	Room Hire- GIK	£5.55
Literature and promotional display	£900.00	Graphics Department time - GIK	£491.31
Community group workshops x 3 (refreshment & transportation)	£300.00	Room Hire – GIK Free entry for participants to Zoo Nursery – GIK Gardens Dept time - GIK	£4.00
Plant Conservation Day	0.00	Staff time - GIK	
Gardens Reception – Celebration end of the projects for community groups, guests etc.	£1600.00	Staff time – GIK Free entry to participants to Bristol Zoo – GIK Free entry to Zooropia - GIK	£1033.75
Fund raising officer time – seeking further funding.	0.00		
Not in Budget- Refreshments			£148.46
Not in Budget – Seed storing Equipment			£54.81
Not in Budget – Laptop for Project Officer			£383.31
Not in Budget- Materials for Plant 'Cages'			£163.37
Not in Budget- Photographer for Garden Reception			£65.00
Total	£10,000.00		£9393.78

7. Conclusion

This project was created to look at the feasibility of a creating a dispersed National Plant Collection of *Calendula* by engaging community groups.

Looking solely at this aim, the project has succeeded in obtaining a large variety of *Calendula* species which would achieve Nation Plant Collection 'Provisional' status. It was also successful in engaging a majority of the community groups involved with the project with 7 out of the 9 participating groups producing plants for the display in Bristol Zoo Gardens. Of these 7, 4 community groups returned seed for use next year.

As far as we know this is the first time a project of this kind has ever been undertaken, so almost every aspect has been a learning process. Analysing areas of failure within the process can only increase the chances of a greater success next year.

The main area of concern for the project is its sustainability next year. Sufficient resources to employ a project co-ordinator would be essential in its continuation and success in establishing the first dispersed National Plant Collection in the country. As there was no 'best practice' to follow, due to the uniqueness of the project, problems were inevitable but the experience gained will help to improve both the process and experience for all those involved next year.

What has been the greatest success in this project has been the impact on some of the community groups. Although the evaluation shows that those who returned Post project survey had gained knowledge and awareness of conservation, it has been the other impacts demonstrated in anecdotal evidence which was the most unexpected and pleasing.

On an individual level this can vary from improved feelings of self-worth to a sense of achievement. On a group level, Chard Court has demonstrated aspects of community cohesion as a result of the project. Both Chard Court and Robinson House Care Home also demonstrated an increased ambition to improve their own physical environment. These results could not have been anticipated at the beginning of the project and illustrates that the continuation of the 'Bristol Community Plant Collection' could have further educational and emotional impact on individuals and groups.

By showing that it is possible for community groups to grow and harvest plants successfully, this project could be used as a model to improve the social role of botanic gardens around the world. It also hints at the possibility of communities playing an active part in plant conservation and a potential future resource for Botanic Gardens and other conservation agencies.

Acknowledgements

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I would like to thank Ökologisch-Botanischer Garten – University of Bayreuth, Germany and the Agriculture Research Service, United States Department of Agriculture for providing the Calendula species seed that now make up our collection.

I'm very grateful for the support of Mercy Morris and Plant Heritage for promoting the Bristol Community Plant Collection and 'Bristol in Bloom' inviting me and Upper Horfield Community Garden to talk to the judges for 'Entente Florale'.

Thank you to Ling Lee and Kyle Pickford for making such a beautiful film about this project.

I would like to thank Weleda UK Ltd for providing complimentary Calendula products for display at events and GeeJay Chemicals Ltd, Sandy, for sending free indicator silica packets for seed storage.

Finally, a huge thank you to all the 'Growing Partners' that made this whole project a privilege to be involved with.

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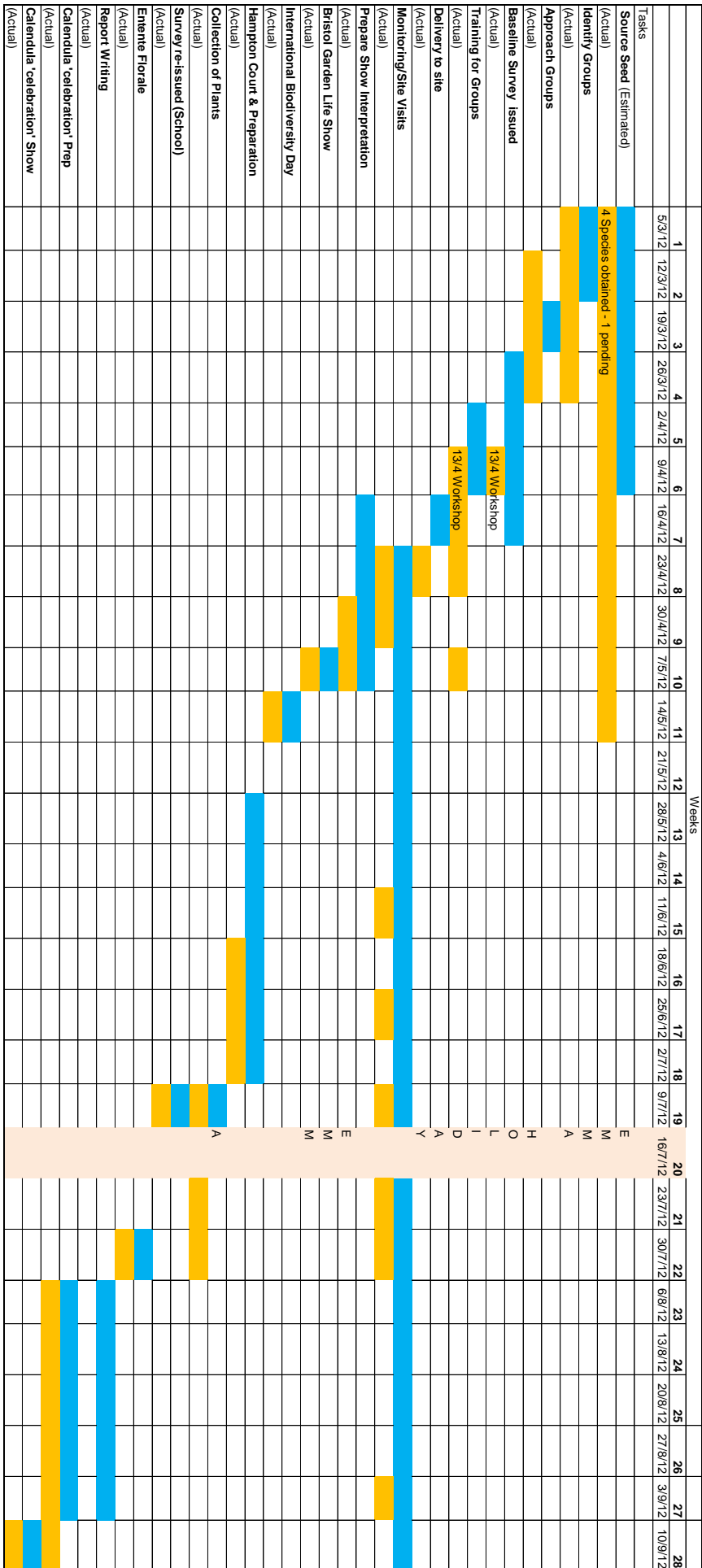
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APPENDIX

- 1.1 [Gantt Chart of activities](#)
- 1.2 [Training Pack given to 'Growing Partners'](#)
- 1.3 [Outreach activities – Photographs](#)
- 1.4 [Cabot Primary School – Photographs](#)
- 1.5 [Chard Court – Plant Experiment Photographs](#)
- 1.6 [Stoke Bishop Church of England Primary School – Photographs](#)
- 1.7 [Upper Horfield Community Garden - Notes on plant progress](#)
- 1.8 [Baseline & Post Project Surveys](#)
- 1.9 [Proposed future Application Form](#)

1.1 Gantt Chart of activities



2. Growers Training Pack



Welcome!

Thank you for being a part of the first year of the Bristol Community Plant Collection. We hope that you will enjoy being part of this project and find the process interesting, fun and educational!

This pilot scheme is being supported by Botanic Garden Conservation International, Plant Heritage and Bristol in Bloom. Part of the process will be elements of research on how the project is progressing. To help evaluate we will include a short survey at the start, and end, of the project and possibly a chat to see what went well and if anything could be improved if needed.

As well as providing everything you need to grow these plants, we would also like to offer our services as fellow gardeners. If you need any advice or help, we will do our utmost to solve potential problems and also visit your site to see how you're getting on.

You can keep in touch with everyone else involved with the project by adding to our Facebook page **Bristol Community Plant Collection**. We would love to see your pictures and comments as the project progresses.

If you do want to use your involvement in this project for publicity for your group, please contact Lucy King in our Marketing Department (Tel: 0117 973 7306) before releasing anything to the press. This allows Lucy to provide the relevant context and add any additional information as necessary.

If you have any questions, or problems, you can email Emma Moore at emoore@bristolzoo.org.uk .

Thank you again for being involved in this exciting project. We sincerely hope you enjoy it and find it a rewarding experience!



Why a Plant Collection and why Calendula?

Bristol Zoo Gardens have begun this project as it involves a number of elements of horticulture, conservation and community involvement which has never been done before.

The first element of the project is the National Collection. The Gardens currently holds two National Collections (maintaining 75% of known plant species for conservation purposes). It was always hoped we might add a third.

The second is conservation. It is difficult for one organisation to look after one type of annual plant as there are issues with cross-pollination. By growing it in a dispersed collection, these issues can be minimised. It also creates a model for growing in this manner in the future, possibly to save plants.

The third element is you! Involving different community groups like yours makes the whole project possible. In return, we hope to pass on our knowledge and raise awareness about the importance of plants

We are using Calendula for this project as it's bright, cheerful and easy to grow.

The common name for Calendula is 'Pot Marigold' and its botanical name comes from the Latin *kalendae* meaning the first day of the month. This is thought to have come from the fact that the plant is in flower on the first day of most months.

Calendula mostly grow in the Mediterranean and North Africa, but also as far east as Israel and Iran.

Calendula officinalis is the most common form and is found in many gardens. These are what the varieties that we find in seed catalogues are from. Extracts from this plant





have anti-viral and anti-inflammatory properties. It can often be found in creams to soothe and reduce irritation of the skin.

Traditionally Calendula has been used for stomach cramps and constipation. Scientific tests reveal that extracts from the flowers do have anti-spasmodic properties, confirming its historical use was effective.

Calendula officinalis can also be used as a culinary herb with the petals added to salads. The petals are also used as a cheap substitute to saffron to colour food.

Calendula can also be used to dye fabric, with the flowers producing colours from a bright yellow to khaki green. This dye is also added to many cosmetics.

As you can now appreciate, it is a very versatile flower!





How to Sow your Calendula Seed

Calendula are classed as Hardy Annuals. An annual plant has its lifecycle from germination to seed within one year. Hardy annuals can withstand light frost and so seed may be sown outside where it is to flower.

Sowing Direct – in open ground where they are to grow

When: From April, when the soil has warmed up to at least 7° c.

Can be sown in batches until mid-summer.

Or sow in autumn for flowering in spring or early summer the following year. Seeds will germinate and then over-winter as small plants.

Where: Choose a position in full or partial sun on rich well-drained soil.

Clear weeds from the site.

How: Dig over the ground to one spade's depth then rake and firm.

Sow seeds in lines (drills) spaced 30 cm apart. Mark out the lines using sand, or string attached to sticks. Make a furrow 1cm deep with the corner of a hoe or rake. Scatter the seeds thinly and evenly along the furrow, approximately 5cm apart. Rake soil back over the drill without disturbing the seeds. Label the row and water with a watering can with a fine spray.

Seeds can also be broadcast sown - but this will make it more difficult to identify weed seedlings. Sprinkle seeds thinly on the surface of prepared soil, rake in lightly, and water with a watering can with a fine spray.

Aftercare: Continue to water regularly Remove weed seedlings from the area.



The seeds should start to germinate after 5 – 10 days. When the seedlings are big enough to handle (approx. 5cm tall) thin the plants in the rows to 10cm apart, leaving the stronger ones in place. This is best done when the soil is moist and the weather mild. If seedlings to be thinned are close together, gently hold the soil down around the seedling that is staying in the soil, while lifting the other. This will help prevent root disturbance. Water lightly after thinning.

After another month (8-10 weeks after sowing) thin again, this time to 30cm apart. These seedlings can be transplanted elsewhere if carefully lifted with a pencil with a little soil still attached to the roots. Use to fill in gaps left by poor germination. Water lightly to settle roots in.





Things that could go wrong! – Pest & Diseases

Hopefully all your plants will germinate and grow up to be lovely healthy plants. Sometimes plants can be affected by pests and diseases which may weaken or stress the plant. The quicker these are recognised the greater the chance that the plant will survive.

If you do suspect something is wrong and you are not sure what to do, talk to us! You can email a picture so we can make a diagnosis or we can visit your site.

Aphids

You may see the following symptoms:

- It is usually possible to see aphid infestations with the naked eye, and they tend to colonise shoot tips, flower buds and the underside of younger leaves
- Aphids cause stunted growth with curled or distorted leaves. This can weaken the plant
- Most aphids also excrete sugary honeydew on foliage, stems and fruits, which allows the growth of black sooty moulds
- White cast skins of aphids accumulate on the upper surface of leaves



Aphids have many natural enemies, including ladybirds, hoverfly larvae, lacewing larvae and several parasitic wasps. Use your finger and thumb to squash infestations on small plants.





Grey Mould

Grey mould is a disease caused by the fungus *Botrytis cinerea*. It normally enters through a wound or infects plants under stress, but will infect healthy plants as well, especially under humid conditions. It can be expected at any time of year.

It is a problem for plants grown under glass, where conditions can be humid and overcrowded. It will infect most ornamental plants.

You may see the following symptoms:

- Under humid conditions, fuzzy grey mould grows on affected buds, leaves, flowers or fruit
- If humidity is low, infections may be contained within discrete spots, but if it is high they can spread rapidly
- Above-ground parts of many plants, particularly buds and flowers, shrivel and die
- Small black seed-like structures form in infected material (these are often overlooked)



Hygiene is very important, especially under glass. Remove dead and dying leaves, buds and flowers promptly. Do not leave dead plant material lying around. Reduce humidity by improving ventilation and do not overcrowd plants.





Powdery Mildew

Powdery mildews are a group of related fungi which attack a wide range of plants, causing a white, dusty coating on leaves, stems and flowers.

You may see the following symptoms:

- White, powdery spreading patches of fungus on upper or lower leaf surfaces, flowers and fruit
- Tissues sometimes become stunted or distorted, such as leaves affected by rose powdery mildew
- In many cases the infected tissues show little reaction to infection in the early stages, but in a few specific cases, for example on *Rhamnus*, the infection provokes a strong colour change in the infected parts, which turn dark brown
- Sometimes the fungal growth is light and difficult to see despite discolouration of the plant tissues, eg on the undersurface of rhododendron leaves



Destroying fallen infected leaves in autumn will reduce the amount of infectious spores next spring. Mulching and watering reduces water stress and helps make plants less prone to infection. Promptly pruning out infected shoots will reduce subsequent infection.





When are the seeds ready?



The seeds will turn from green to brown.



Harvesting

- Hold the seedhead over a paper bag. Snip the stem under the seedhead and let it drop into the sack. At this point, it's easiest to let the seedheads dry completely before removing the seeds. Leave the seedheads in the paper bag, and then place the bag in a warm, well-ventilated room out of bright sunlight. Alternatively, place the seedheads on a paper plate or a tray lined with newspaper. Shake or stir the seed heads every few days so the seeds dry evenly.

Removing the Seeds

- When the seedheads are completely dry, remove the seeds. Hold the seed head over a bowl, rub the dry seedheads between your palms and let the seeds fall into the bowl. Use a pair of tweezers to pick the calendula seeds from the debris.

Storing

- Place the dry calendula seeds in a small paper bag or envelope. Label the envelope with important information, such as full plant name and harvest date. Put the sack or envelope in a glass jar with a secure lid. The seeds are then ready to return to the Zoo. Never store calendula seeds in plastic, as the seeds can't breathe and may develop mould.



It's all Greek to me!

As mentioned before the *Calendula* plant has its roots in the Latin 'kalendae' which our own word calendar also comes from.

Although many consider that Botanical Latin is something for the experts with a little common sense, it's easy to decipher.

Below is a list of species that are included in the collection, so you can become an expert on *Calendula* too!

Calendula officinalis - means "of or belonging to an *officina*" - the *officina* being the storeroom of a monastery where medicines were kept. Refers to plants that have medicinal value

Calendula arvensis - Latin for 'in the fields' hence the Field Marigold

Calendula stellate – From the Latin 'Star'

Calendula palaestina – From Palestine

Calendula tripterocarpa – Tri – Three, ptero – feather, carpa – flower. (If you look at the end of the petals you will see 3 feathery bumps.



1.3 Outreach activities



Art-based Calendula activities at Zion Community Art Space – Bedminster Down, Bristol .All of the children left with Calendula seed to plant in their own garden.
Photograph Emma Moore, Bristol Zoo Gardens.



Bristol Community Plant Collection at the Bristol Garden Life Show, Broadmead, Bristol.
Photograph Emma Moore – Bristol Zoo Gardens

1.4, Cabot Primary School - Photographs



Photograph by Jessica Johns.



1.5, Chard Court Plant Experiment



Photograph –Mrs W.– Chard Court



Training Session held for the Eco-Club

Photograph Jon Hill – Bristol Zoo Gardens

PLANTS of Sue Moon
Taken photos to be developed.
Seeds planted 6/5/2012
Two seeds up first two leaves
10/5/2012
18/5/2012 plants have four leaves
Still only two plants up
24/5/2012 plants have six leaves
25/5/2012 two more leaves - now eight
still 6 on smaller plant
still only two plants
31/5/2012 nine leaves on one plant
June 30 one plant with flower
bud forming
July 2nd being collected.
photos developed.



I think Bristol Zoo Gardens is a place where.....

I think a National Plant Collections is

Things I know about Calendula.....

Have you been to Bristol Zoo Gardens? Yes / No

If Yes, how often?

Name.....

Group.....



I think Bristol Zoo Gardens is a place where.....

I think a National Plant Collections is

Things I now know about Calendula.....

What did you enjoy about the project?

How could we improve your experience of the project?

Would you take part in this project again next year? Yes No

If No, why not?

Name.....

Group.....

Bristol Community Plant Collection

Application Form for Growing Partner

Organisation name

Type of organisation

Address

.....

Lead contact

Email

Contact Number

Number in group

What is expected of Growing Partners?

Please tick if you are able to complete the following tasks as part of the project

Attend a one off training session

Grow 30 plants in pots for display at Zoo

Grow plants on site for seed collection

Keep basic records about the plants development

Accommodate site visits when needed

Update progress by email or social media

Bristol Community Plant Collection

Thank you for showing interest in the Bristol Community Plant Collection earlier this year.

We are now looking for Growing Partners for the project next year.

The Bristol Community Plant Collective is a progressive approach to plant conservation and is thought to be the first of its kind in the world. We want to gain National Plant Collection status for the plant *Calendula* (Pot Marigold) by growing plants in a dispersed collection across the city. By being part of this project you will be part of the first National Plant Collections held by community groups and the city of Bristol.

As part of this project we can offer you:-

- Seeds
- Equipment
- Full training
- Support
- Visits to your site
- Educational materials.

In return we ask you to attend a one off training session, grow 30 plants for display in the zoo, keep some on your site to collect seed for the next growing season, keep basic records and keep in contact either by telephone, email or social media.

The groups that have taken part this year have had great fun and many are taking part again this year. Some of them had no gardening knowledge at the start of the project but have grown in horticultural confidence and are growing all sorts of flowers and vegetable now.

If you have any questions please don't hesitate to contact me and you can see pictures of this year's project at Bristol Community Plant Collection Facebook page.

Emma Moore