



# Growing the Future Evaluation

Mid-Term Evaluation Report

National Botanic Garden of Wales

June 2020

Growing the Future Evaluation: Mid-Term Evaluation

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## Glossary

### Glossary text

Acronym/Key word	Definition
GTF	Growing the Future Project
GTF Pilot Project	Growing the Future Pilot Project
RDP	Rural Development Programme
Botanic Garden	National Botanic Garden of Wales

## Executive Summary

- The National Botanic Garden of Wales (Botanic Garden) was awarded funding through the Rural Development Programme for Wales to deliver the five-year Growing the Future (GTF) project (2017-2022). The Project's aim – to be delivered via three work packages – is to promote and develop Welsh horticulture through provision of training and knowledge transfer to individuals and groups from diverse audiences.
- This mid-term evaluation report assesses how GTF has delivered against its target activities and indicators to-date and considers its progress towards longer-term outcomes and objectives.

### *Activities*

- The Project is delivering against its associated indicators for WP1 – Gardens for Health and Well-being - having established the infrastructure and resources necessary to deliver horticultural training courses for both adults and children and run public engagement activities. Between May 2017 and May 2020, 316 training courses have been provided by the Project, focusing on the themes of GTF including food production, wildlife, pollinators and gardening. GTF has also collaborated with well-known shows across Wales including the RHS Flower Show (Cardiff) and the National Eisteddfod.
- GTF has been celebrating Welsh horticulture (WP2) to showcase Welsh horticultural suppliers and producers, aided by successful marketing and engagement via various mainstream and social media channels. The Project has established annual events held at the Botanic Garden (e.g. Daffodil Day and Apple Weekend), attended external events (e.g. The Royal Welsh Show) and created display areas, to showcase Welsh produce and businesses.
- Strong achievement has been made against the associated indicators of WP3 (Horticulture for the Future) – the creation of networks between science and horticulture, and the establishment of a new

market for sustainably produced plants for pollinators. GTF has established 11 networks and a series of workshops to improve and discuss the links between the science and the horticulture industry. The Project is also well on its way to developing the Saving Pollinators Assurance Scheme (formerly termed Plants for Pollinators Assurance Scheme) and decreasing the use of peat in nurseries and gardens.

- GTF has progressed towards achieving indicator targets, meeting or surpassing the delivery profile for this stage of the Project and in 3 cases exceeding the overall target.

**Table 1. GTF progress towards indicator targets (as of May 2020)**

Project Indicators	Project Target	Profile to Date	Progress to Date <sup>1</sup>
Number of actions / operations supported	374	184	527
Number of training days given	9,785	3,903	5,324
Number of unique participants in training	15,141	6,044	9,921
Number of jobs created	7	7	7
Enterprises assisted	10	10	28
Number of participants supported	77,540	40,000	61,607
Number of networks established	5	5	11

Source: Growing the Future Progress Report

*Outcomes and Impacts*

<sup>1</sup> As at 31/03/2020

- GTF is adapting well to the challenges posed by COVID-19 including remote working, the temporary closure of the Botanic Garden and hubs, and the cancellation of courses and events. The Project has adopted an innovative approach, utilising different means of engagement by increasing its online and accessible resources whilst hosting virtual events (e.g. Daffodil Day).
- At the mid-term stage of this evaluation, it is too early to understand the full impact of GTF activities, although more will be known once primary research with beneficiaries has been conducted. However, strong progress towards target indicators and stakeholder views indicates that the GTF brand is strengthening and the Project will continue to engage with audiences to deliver significant levels of training, champion Welsh horticulture, protect wildlife and pollinators and extol the virtues of growing plants for food, fun, health and well-being.

## Recommendations

### **To enable the delivery and evaluation of GTF's desired final outcomes and impacts, we recommend:**

- In order to demonstrate progress in WP1 more clearly and inform the evaluation, we suggest the following information is to be embedded in future monitoring reports:
  - Information on the progress of the DPS (including number of training providers registered)
  - Progress and uptake of online learning
  - Status of project variations and an update on the rationale behind changes of delivery activities from original project plan
- WP2 is clearly on track, but the transparency of the Project could benefit from progress reports being organised by work package. This would ensure that although activities are complementary and subsequently have significant overlap across the different work packages, that they can be attributed to the aims of a particular work package.
- It was suggested by a number of stakeholders that the adaptability of the Project has been important in its successful delivery so far. To continue to build on the achievements of WP3, the Project could benefit from noting what changes have taken place in terms of delivery against the original project plan and note these separately.
- The Project has shown great adaptability in responding to lockdown measures and disruption of the delivery of course and events. The continued diversification of means of engagement will be essential in ensuring that the Project reaches its key performance indicators between now and the final stage of delivery.
- Current targeting of courses has engaged a wide demographic spread of attendees, including a substantial proportion of previously non-engaged audiences (see Annex C). Specifically targeting under-represented demographic groups through bespoke marketing,

communications and widening outreach projects will allow the continued growth of 'new' audiences for the Project and the Botanic Garden.

## 1. Introduction

1.1 The National Botanic Garden of Wales (Botanic Garden) commissioned Miller Research in 2019 to undertake a mid-term assessment and a final evaluation of Growing the Future (GTF). This report presents the mid-term assessment of the Project's delivery progress to-date (May 2017- May 2020).

### *GTF Project Overview*

1.2 The Botanic Garden started the delivery of the five year GTF programme in April 2017.

1.3 In September 2017, the Project was awarded £2,300,724 for delivery through the Rural Development Programme (RDP) 2014-2020, by the Welsh Government and the European Union under Knowledge Transfer and Innovation sub-measure 1.1: support for vocational training and skills acquisition actions. GTF follows-on from a pilot Growing the Future project (GTF pilot project), also funded by the RDP, which ran between 2012 and 2015. When designing GTF the Project Team were careful to learn lessons from the pilot project and this has led to improved vision, design and effectiveness of delivery in this project.

1.4 The overall objective of GTF is to 'promote and develop horticulture in Wales by providing training and knowledge transfer to individuals and groups from diverse audiences'.<sup>2</sup> The Project intends to increase people's participation in gardening for health, fun and wellbeing, aid the protection of the environment, pollinators and wildlife to celebrate Welsh horticulture and to advance horticulture for the future by developing connections with scientific research. GTF does this by providing training courses designed for all ages to the general public, schools and uniformed and non-uniformed groups at the Botanic Garden site and across a network of hubs across Wales. The Project has a presence at events around the world as well as hosting its own,

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<sup>2</sup> GTF RDP Application Form, Part 2: Project Plan, p.3

to disseminate the scientific research by the Botanic Garden, notably in regard to the pilot Saving Pollinators Assurance Scheme.

1.5 The Project is addressing its objectives through the delivery of three work packages. Similarly, the evaluation is structured in line with the following overall objectives:

- WP1 - Gardens for Health and Well-being
- WP2 – Celebrating Welsh Horticulture
- WP3 - Horticulture for the Future.

#### *Evaluation Rationale*

1.6 Evaluation is a key requirement for all projects that have received funding under the RDP 2014-2020 priority 1 - Knowledge Transfer and Innovation. Evaluations are necessary to independently assess project interventions, provide guidance as to where improvements might be possible and identify learning to inform future operations. As such, it is imperative that an effective approach is undertaken to evaluating GTF.

1.7 We understand that in this round of the RDP there is an expectation of projects adopting a stronger focus on effects and emerging impacts where possible and ensuring a contribution to answering the Common Evaluation Questions for rural development specified by the European Union<sup>3</sup>.

1.8 The aims of the evaluation are to provide ongoing monitoring and reporting for GTF, reviewing the key milestones and actions of the Project and examining the progress against objectives. The identification and attribution to GTF activities of outcomes and impacts as well as the effectiveness of project systems and processes will be the focus of the Final stage.

#### *Report structure*

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<sup>3</sup> <https://beta.gov.wales/sites/default/files/publications/2018-09/co-operation-and-supply-chain-development-scheme-project-evaluation-guidance.pdf>

1.9 This report forms the main output of the mid-term evaluation. The content is presented in the following structure:

- Section 2 outlines the approach of the evaluation team
- Section 3 assesses the key policy drivers for GTF and the needs and objectives the Project addresses
- Section 4 summarises the resources available and addresses their adequacy for achieving the objectives
- Sections 5-8 present the progress of GTF and its work packages so far in delivery
- Section 9 presents the Project's alignment with the cross-cutting themes of:
  - Equality of Opportunity and Gender Mainstreaming
  - Sustainable Development
  - Tackling Poverty and Social Exclusion
  - Welsh Language
- Section 10 contains the conclusions and recommendations of the evaluation team at the mid-term stage.

## 2. Evaluation Methodology

2.1 The design of the evaluation method was based on the evaluators' experience of conducting evaluations of RDP projects, combined with the specific requirements of the GTF Project. The evaluation tasks are divided into the following phases:

- Inception and scoping phase
- Mid-term evaluation
- Final evaluation

### Inception and Scoping Phase

2.2 The inception and scoping stage preceded the mid-term stage of the evaluation. This entailed a desk-based review of key documentation to develop our understanding of the policy environment and the context of the delivery of GTF. This included a review of the RDP Application Form / Project Plan, progress reports from the start of GTF delivery (May 2017 to May 2020) and wider programme documentation. This review was supplemented with interviews with partner hubs. These presented the evaluation with both the original ideas for GTF and evidence of how it was operating in practice.

2.3 Following the documentation review, a logic model was developed, which adopted the Theory of Change approach. Built on two key approaches, UK Treasury Magenta Book<sup>4</sup> guidance and the EU Better Regulations Framework, this approach starts with expected impacts and outcomes, and works back through outputs, activities and inputs to understand why and how they happened. The logic model has identified and mapped interdependencies and assumptions between the policy drivers, needs, objectives, activities and effects (outcomes / impacts). The logic model was discussed with the GTF Project Team as part of a workshop to ensure consensus building within the team

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<sup>4</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/879438/HMT\\_Magenta\\_Book.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/879438/HMT_Magenta_Book.pdf)

and to build upon the evaluation team's understanding of the programme. The finalised Logic Model can be seen in Figure 2.1.

- 2.4 After finalising the logic model, an evaluation framework was developed to inform the mid-term and final stages of the evaluation. This framework utilises the logic model and forms the basis for collecting evidence on the descriptive elements of the logic model by asking specific targeted evaluation questions. The evaluation framework ensures that the right questions are being asked of the right stakeholders. All of the research materials produced for the fieldwork activities rely on the questions posed in the evaluation framework.
- 2.5 An online survey was developed during the mid-term stage of the evaluation and will be utilised during the final phase of the evaluation (Annex A). It will provide data from beneficiaries who have participated in training courses, themed events and workshops, and to further understand how those who have attended events by GTF have benefited from them. The survey will be distributed by the GTF Team and its findings will be presented in the final stage of the evaluation.

# Growing the Future Evaluation: Mid-Term Evaluation

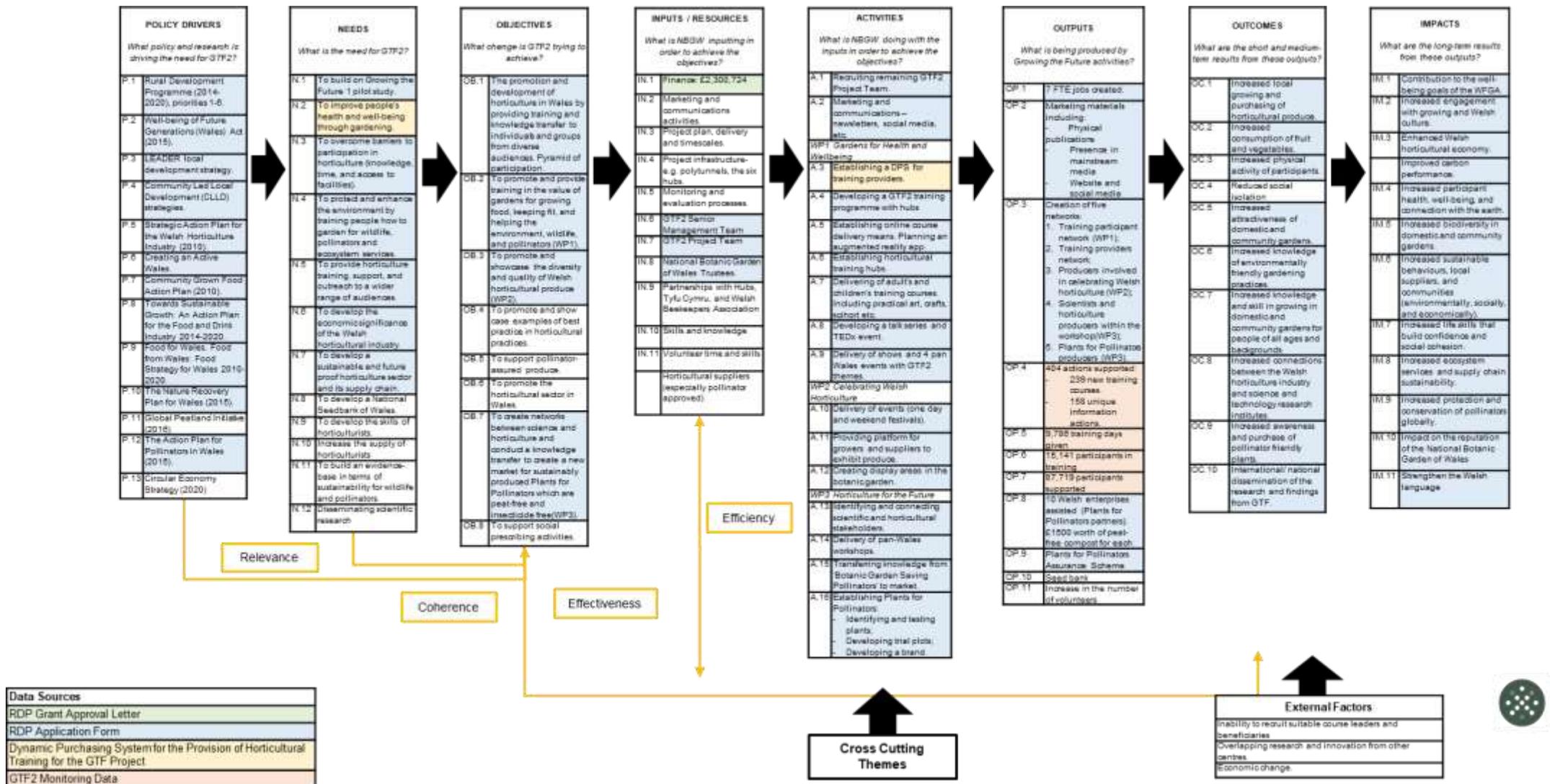


Figure 2.1: GTF Logic Model

### **Mid-Term Evaluation**

- 2.6 Evidence for the findings of the mid-term evaluation report was gathered through a series of qualitative interviews with members of the Project Team and delivery partners. These interviews focused on the processes put in place to ensure successful delivery of the Project, current progress since project inception and lessons to be learned for future delivery.
- 2.7 To supplement the qualitative interviews with the Project Team and delivery partners, the perspective of a small sample of beneficiaries was captured through additional in-depth telephone interviews. Information gathered through these interviews included the individual experience of volunteering at the Botanic Garden and observable outcomes of course participation.
- 2.8 The qualitative data gathered through interviews has been triangulated with an in-depth review of the monitoring data gathered by the GTF Project Team from May 2017 to March 2020.

### **Next Steps**

- 2.9 In order to provide ongoing support, a short monitoring slide deck will be produced in 2021, one year after this report and a year before the final evaluation report.
- 2.10 Miller Research will commence the final evaluation in March 2022. The evaluation approach can be seen in Figure 2.2.
- 2.11 The final evaluation will include a review of all monitoring data, interviews with Project stakeholders and beneficiaries, and dissemination of the data collected through the online survey. The final output of this evaluation will be a report delivered in Spring 2022.

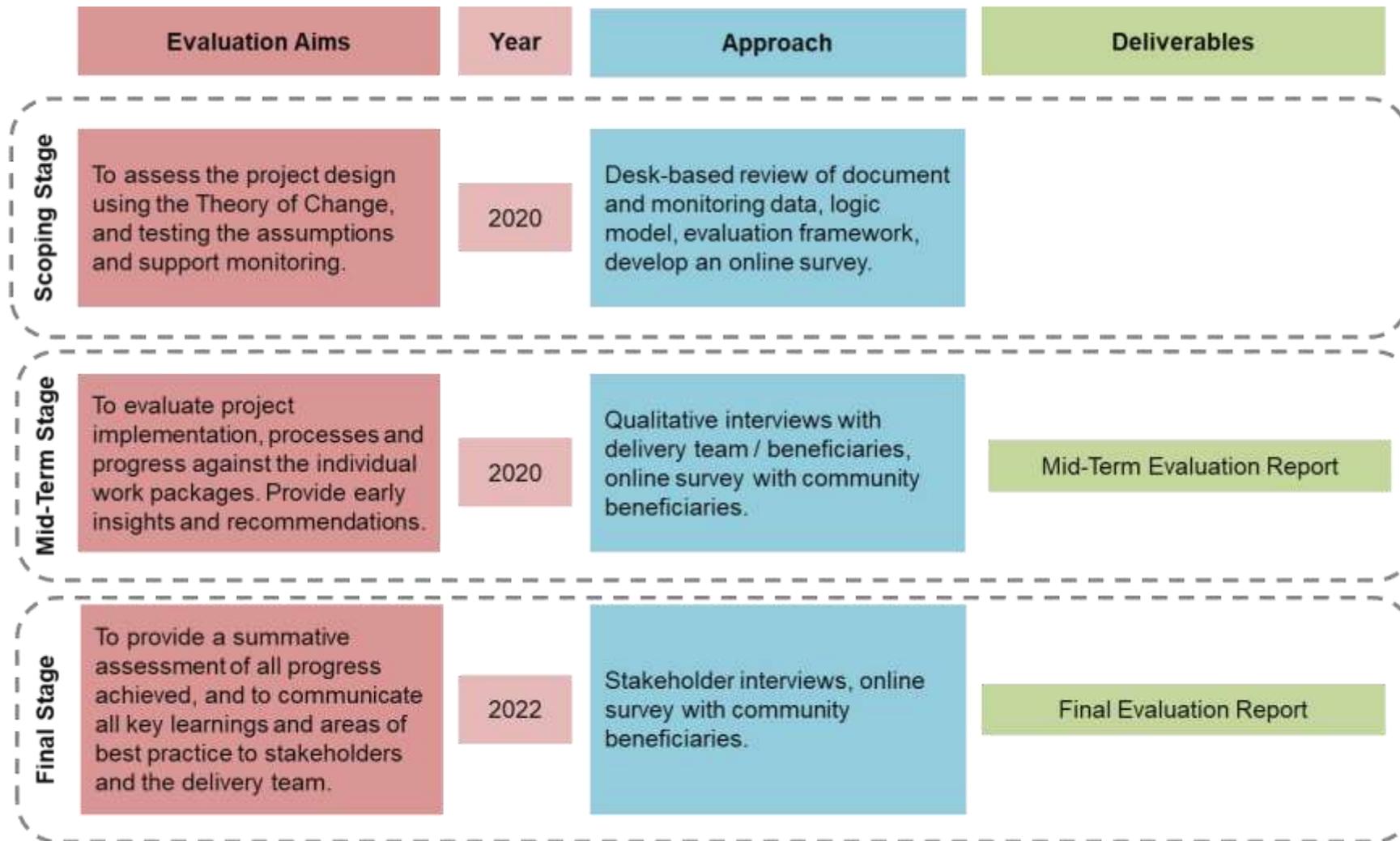


Figure 2.2: GTF Evaluation Approach

### 3. Policy Drivers

#### Policy Context

3.1 This section will include a short summary of the policy and strategic drivers that are relevant to the Project.

#### *EU Commission Objectives*

3.2 GTF closely aligns with the EU Commission's objectives and aims. Specifically, it aligns with RDP 2014-2020 priority 1 - Knowledge Transfer and Innovation.<sup>5</sup>

3.3 The RDP aims to support the sustainable management of natural resources and climate action, the competitiveness of agriculture and the balanced territorial development of rural economic and communities. GTF contributes towards these RDP aims by promoting and developing horticulture in Wales through providing training and knowledge transfer to individuals and groups from diverse audiences. This includes promoting biodiverse and environmentally friendly horticultural practices to give people the confidence to shift towards a more climate resilient way of life, developing a new market for technically advanced and sustainably produced pollinator-friendly plants, and undertaking pan-Wales events to maximise project inclusion.

#### *Welsh Government Strategies*

3.4 GTF is aligned with Welsh Government strategies, plans and targets including:

- **Well-being of Future Generations Act<sup>6</sup>**: the act focuses on improving the social, economic, environmental and cultural well-being of Wales, broken down into seven goals. By increasing the knowledge of participants, stimulating purchase of Welsh horticulture and pollinator friendly plants, and creating links between

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<sup>5</sup> [https://enrd.ec.europa.eu/policy-in-action/rural-development-policy-figures/priority-focus-area-summaries\\_en](https://enrd.ec.europa.eu/policy-in-action/rural-development-policy-figures/priority-focus-area-summaries_en)

<sup>6</sup> <https://futuregenerations.wales/wp-content/uploads/2017/02/150623-guide-to-the-fg-act-en.pdf>

the Welsh horticultural industry and research institutes, GTF seeks to contribute towards Welsh prosperity. GTF also encourages local growing, biodiverse and environmentally friendly horticultural practices, and addresses the global decline of pollinators, aiding Welsh resilience and global responsibility. Through the promotion of physical activity, healthy eating and well-being, the Project further promotes a healthy Wales. Bilingual, Pan-Wales training and engagement opportunities for all ensures a more equal, cohesive and vibrant Wales

- **Strategic Action Plan for the Welsh Horticultural Industry (2010)**<sup>7</sup>: the plan identifies ways in which the horticulture supply-chain can work together to meet future challenges and deliver sustainable industry that benefits the people and environment of Wales. Through linking science and horticultural markets, GTF enables the creation of accurate and informed new products for pollinator promotion for Wales and beyond. GTF's focus on knowledge transfer and engagement also aids promotion of existing Welsh horticultural sectors and markets whilst providing information on wildlife and environmentally-friendly practices
- **Action Plan for Pollinators in Wales (2013)**<sup>8</sup>: the plan aims to slow and reverse the declining numbers of Welsh pollinators to optimise economic, social and environmental outcomes. Through creating a new market for sustainably produced plants for pollinators, via the pilot Saving Pollinators Assurance Scheme, engaging the public in wildlife and environmentally-friendly horticulture and providing training in the value of gardens for helping the environment and pollinators, GTF can contribute to this action plan
- **The Nature Recovery Plan (2015)**<sup>9</sup>: the plan aims to conserve and restore Welsh nature, reversing the decline of biodiversity and

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<sup>7</sup> <https://gov.wales/sites/default/files/publications/2018-05/horticulture-industry-strategic-action-plan.pdf>

<sup>8</sup> <https://gov.wales/sites/default/files/publications/2019-04/action-plan-for-pollinators.pdf>

<sup>9</sup> <https://gov.wales/sites/default/files/publications/2019-05/nature-recovery-action-plan-2015.pdf>

placing nature at the heart of decisions. By educating and raising public awareness of wildlife-friendly horticulture and stimulating habitat creation through engaging with scientific research, the three work packages of GTF correspond to aiding nature recovery in Wales

- **Community Grown Food Action Plan<sup>10</sup>**: the plan aims to promote and encourage individual and community growing in Wales to improve food security, connect people to the food chain, improve health and well-being, and increase interest in growing food. GTF parallels to this plan through delivering courses and public engagement that raise awareness of growing your own food and celebrating local food producers
- **Towards Sustainable Growth: An Action Plan for the Food and Drink Industry 2014-2020<sup>11</sup>**: the plan sets out the ambition to grow sales in the food and drink sector by 30% to £7 billion by 2020 focusing on market development, sustainable growth, job creation, community engagement and a healthy food culture. Through promoting engagement with food for both adults and children, and raising awareness of Welsh producers, GTF corresponds to this plan
- **Food for Wales, Food from Wales: Food Strategy for Wales 2010-2020<sup>12</sup>**: the strategy provides direction for the Welsh food industry to grow in a sustainable, healthy and profitable manner, enabling a resilient food economy which can compete effectively at home and abroad. GTF relates to the strategy by ensuring a greater awareness of local Welsh producers and providing learning of growing your own food as part of a healthy and balanced lifestyle
- **Creating an Active Wales<sup>13</sup>**: the plan sets out the ambition for an active, healthy and inclusive Wales, providing a healthier future to

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<sup>10</sup> <https://gov.wales/sites/default/files/publications/2018-05/community-grown-food-action-plan.pdf>

<sup>11</sup> <https://gov.wales/sites/default/files/publications/2018-05/food-and-drink-industry-action-plan.pdf>

<sup>12</sup> <https://gov.wales/sites/default/files/publications/2018-05/food-strategy-for-wales-2010-to-2020.pdf>

<sup>13</sup> <http://www.wales.nhs.uk/documents/100121activewalesen.pdf>

all through participation, fun, achievement and building confidence; seeking to further support those who are already physically active and encourage those who are not. GTF seeks to promote an alternative active environment and raises awareness of the benefits of horticulture as a way to stay fit through courses, training and public events

### **Needs and Objectives**

- 3.5 GTF's alignment with the policy and contextual background outlined above demonstrates the need for the Project.
- 3.6 The Project builds upon the Growing the Future pilot project (2012-2015), a previous pilot study also undertaken by the Botanic Garden, which aimed to identify, pilot and review ways of delivering effective and high quality horticultural training programmes that encouraged people to grow more food. Previous evaluations (Richardson, 2015 and Miller, 2015), evidenced a strong demand for a follow-on project proceeding the pilot.<sup>14</sup>
- 3.7 As well as building on the pilot project, GTF is one of a panoply of projects supporting the Welsh horticulture sector. These include:
- **Biophilic Wales (Botanic Garden)**<sup>15</sup> aims to increase the well-being of people, wildlife and the environment throughout Wales through developing grasslands for life, plants for people and inspiring spaces
  - **Horticulture Wales (Glyndŵr University)**<sup>16</sup> aims to identify and develop appropriate clusters of horticulture businesses across Wales, supporting them to reduce waste and improve product shelf life
  - **Sarpo Potatoes (Savari Research Trust)**<sup>17</sup> are developing clusters of growers in Wales to increase the use of blight

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<sup>14</sup> GTF RDP 2014-2020 Application Form

<sup>15</sup> <https://botanicgarden.wales/science/biophilic-wales/>

<sup>16</sup> <https://horticulturewales.co.uk/about-us/>

<sup>17</sup> <http://sarpo.co.uk/>

resistant potatoes. It is envisioned that this will have wider socio-economic benefits for growers

- **Tyfu Fyny (Federation of City Farms and Community Gardens)**<sup>18</sup> is a project that provides advice and support to existing and emerging community growing projects in Wales
- **Tyfu Cymru (Lantra)**<sup>19</sup> works with supply chain partners to prepare growers and producer-owned horticulture companies across Wales to adapt to environmental challenges and capitalise on market opportunities for business development and growth

3.8 GTF seeks to benefit the protection and enhancement of the environment by providing training on how to garden for wildlife and ecosystem services, building up an evidence-base in terms of sustainability for pollinators and developing a national seedbank of Wales. Socially, the Project is needed to overcome barriers to participation in horticulture to a wider range of audiences (including knowledge, time and access to facilities), enabling a positive impact on people's skills, health and well-being. The Project also contributes to the need to develop the economic significance of the Welsh horticultural industry by creating a sustainable and future proof horticulture sector and supply chain.

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<sup>18</sup> <https://www.farmgarden.org.uk/tyfu-fyny>

<sup>19</sup> <https://www.tyfucymru.co.uk/>

## 4. Project Objectives and Inputs

### Project Objectives

4.1 The overall objective of GTF is the promotion and development of horticulture in Wales by providing training and knowledge transfer to individuals and groups from diverse audiences. To deliver on this objective and the policy drivers noted in the previous section, GTF is delivered according to three work packages. These are:

- WP1 - Gardens for Health and Well-being
  - WP1.1 – Horticultural training and life-long learning to individuals (both adults and children)
  - WP1.2 – Public Engagement: Events, Shows and ‘Activities for All’
- WP2 – Celebrating Welsh Horticulture
  - WP2.1 Public Engagement: Festivals and Events
- WP3 Horticulture for the Future
  - WP3.1 SciHort: Pan-Wales Science into Horticulture workshops and networking
  - WP3.2 Science into Horticulture Knowledge Transfer Case Study: Creating a pilot Saving Pollinators Assurance Scheme

4.2 Each of these work packages has a key objective to:

- To promote and provide training in the value of gardens for growing food, keeping fit and helping the environment, wildlife and pollinators (WP1)
- To promote and showcase the diversity and quality of Welsh horticultural produce (WP2)
- To create networks between science and horticulture, and conduct a knowledge transfer case-study to create a new market for sustainably produced plants for pollinators (WP3)

4.3 The stakeholders interviewed for the study all had a good understanding of both the shorter and longer-term objectives for the

project. Furthermore, they all agreed that the Project was relevant for the sector needs.

### Project Inputs

#### *Financial Resources*

- 4.4 As stated in the introduction, the GTF project received its funding from the RDP. The Project was granted total financial support of £2,300,724.

**Table 2 - GTF Overall Project Expenditure**

Grant Requested	£2,300,724
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Item	Estimated Cost (£) Exc. VAT
New staff appointed to the project	£974,699
Existing staff contributing to the project	£349,015
Administration	£20,850
Office equipment	£12,400
Overall project delivery	£165,695
Project evaluation	£60,000
Staff related	£57,903
Project resource costs (WP1-3 delivery)	£298,562
WP1-3 Public engagement	£361,600
<b>Total</b>	<b>£2,300,724</b>

Source: Botanic Garden, GTF RDP Application for Funding Part 2

- 4.5 Financial management of the Project is the responsibility of the Botanic Garden with all financial procedures supervised by the Head of Finance.

#### *Project Infrastructure*

- 4.6 The GTF project is delivered at a variety of sites across Wales to ensure a pan-Wales approach to the project, but the Botanic Garden is the main site for delivery of courses and events. Stakeholders commented that the Project's delivery has benefited greatly from its association with the Botanic Garden brand and the horticultural training infrastructure at the Carmarthenshire site, such as the specialist classrooms and outside teaching areas which are a legacy

of GTF pilot project. The Project has also benefited the infrastructure present at the Botanic Garden with further development of new outside teaching areas taking place.

#### *Project Management*

4.7 GTF is fully integrated with the Botanic Garden strategically and operationally. The GTF Project Lead has overall responsibility for the project and the Project Coordinator's role is to ensure the smooth operation of delivery of the activities. This includes the day-to-day line management of Project Staff.

4.8 In interviews with the Project Team, it was generally commented that the project management has been effective in ensuring the successful delivery of the project. Going forward, the project management is going to be essential in overcoming the disruption that the COVID-19 virus is likely to have on the subsequent delivery of the GTF project.

#### *Project Team*

4.9 The Project Team consists of core GTF staff, specifically recruited to the Project, and existing staff as part of the Botanic Garden. The core GTF team includes a number of different roles to facilitate the effective delivery of the project. This includes:

- Project Coordinator
- Science Officer
- Finance and Administration Officer
- Ecosystems Trainer and Beekeeper
- Marketing and Events Officer
- Horticultural Trainer

4.10 The Project has achieved its objective of creating the new jobs listed above as part of delivery of GTF. Stakeholders interviewed commented that the GTF Team has worked effectively with partners to deliver the three work packages and that team cohesion has been paramount in ensuring that the Project is delivering towards its key performance indicators.

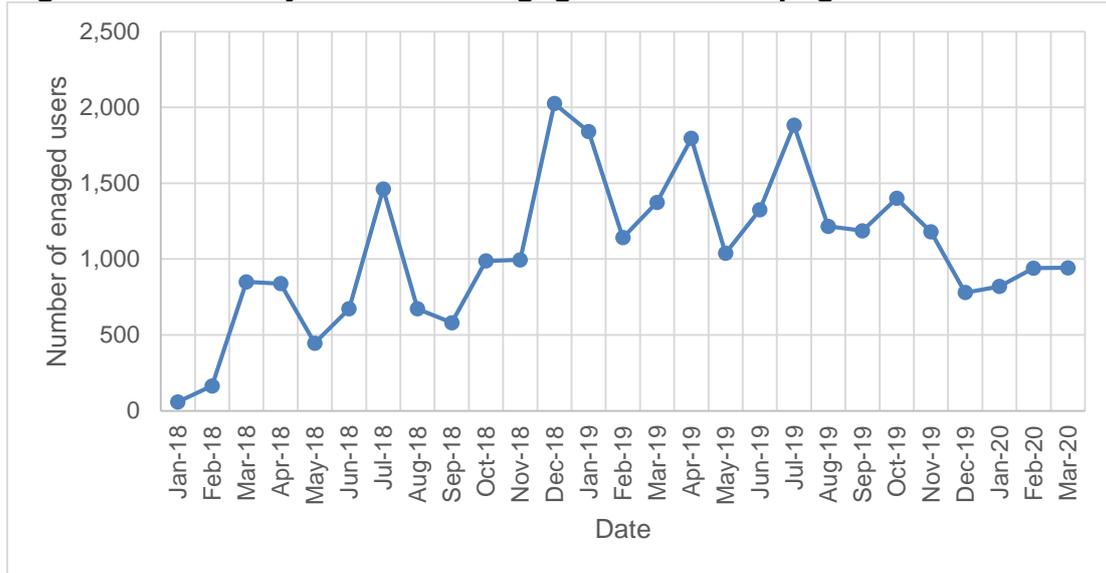
### *Trustees*

- 4.11 The Trustees' role is to oversee the governance and direction of the Botanic Garden organisation and to support the Director implementing the Garden's vision and strategy. The Board can therefore be utilised to support the strategic alignment of the needs of the GTF project.

### *Marketing and Communications*

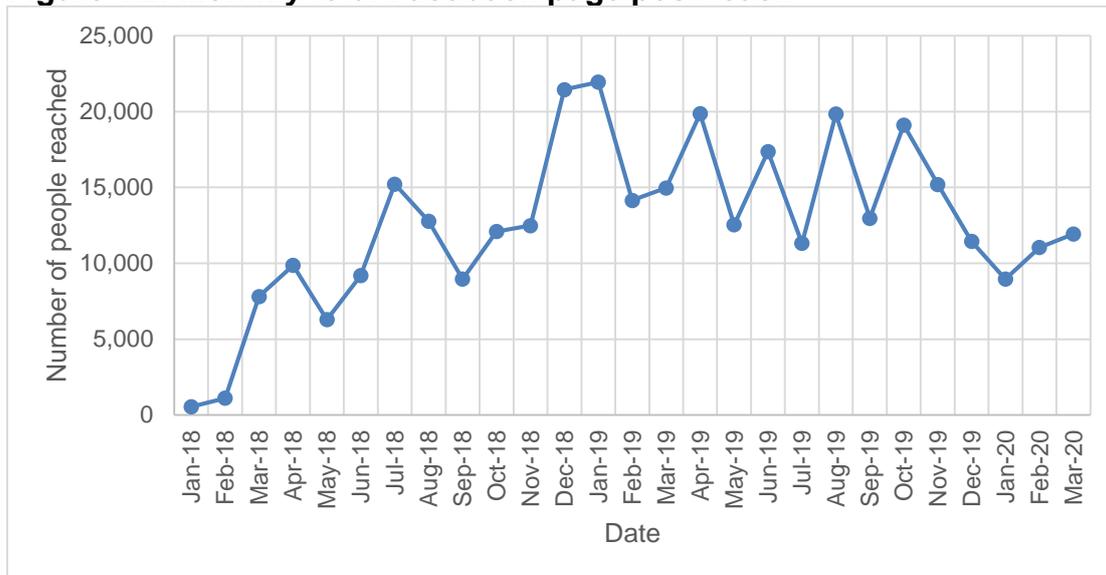
- 4.12 The GTF project has benefited from a Marketing and Events Officer to coordinate the marketing of the GTF project. Marketing and communications have been integral to the delivery of public engagement throughout all three of the work packages and this has been achieved using a variety of different media.
- 4.13 The Project has promoted its activities via Press Releases and through the written press e.g. articles in the Carmarthen Journal, Llanelli, Star, South Wales Evening Post and Western Mail Saturday magazine. GTF also has a strong online presence on social media.
- 4.14 The disruption caused by the COVID-19 outbreak means that online engagement and social media are likely to be increasingly important for the project going forward. The Project currently posts on Facebook, Instagram, Twitter and YouTube. The Project has already used Facebook to engage with a large number of people since the Project's inception (Figure 4.1 and Figure 4.2). The upward trend in the number of page users and monthly post reach is encouraging for the project and offers the opportunity to engage with a wider audience outside of those who are normally attracted to events for the Botanic Garden.

**Figure 4.1: Monthly number of engaged Facebook page users**



Source: GTF Progress Reports

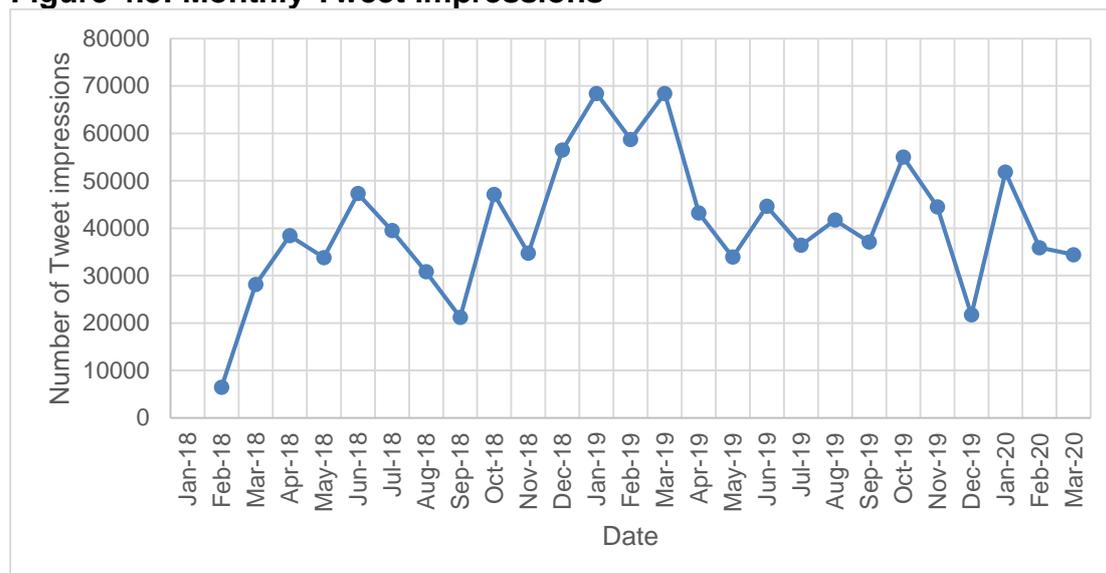
**Figure 4.2: Monthly total Facebook page post reach**



Source: GTF Progress Reports

4.15 Similarly, the project has utilised Twitter in order to increase engagement and communicate activities delivered as part of the Project. As Figure 4.3 shows since February 2018 the Project has received over 20,000 tweet impressions a month with close to 70,000 impressions in January and March 2019.

**Figure 4.3: Monthly Tweet impressions**



Source: GTF Progress Reports

- 4.16 Alongside the communication and marketing taking place on social media platforms, the GTF project has a dedicated section to the Project on the Botanic Garden website. This includes an infographic on the key achievements of the project to-date (Annex B), access to virtual courses, resources for learning at home and at school, as well as resources for gardeners and activities for all.
- 4.17 The Marketing and Events Officer is responsible for creating a newsletter containing information and updates about GTF as well as advertising the courses and events from all three work packages at the Botanic Garden and hubs across Wales. This is sent to a subscribers' list of over 5,000, weekly via email.

## **5. Progress of Gardens for Health and Wellbeing (WP1)**

5.1 Work Package 1 aims to deliver ‘Gardens for Health and Well-being’, promoting and providing training in the value of gardens for growing food, keeping fit and helping the environment. The work package is intended to be delivered throughout the project in the form of horticulture training courses for adults and children (WP1.1) and public engagement, events, shows, and activities for all (WP1.2). This section will examine the progress of WP1 by considering the activities delivered and their potential outcomes.

### **WP1.1 – Horticulture training courses for adults and children**

5.2 The first component of work package 1 (WP.1.1) aims to provide training courses for adults and training, support, and outreach for children. The courses aim to emphasise the importance of gardens for health, well-being and protecting the environment.

#### *Dynamic Purchasing System*

5.3 The GTF project has sought to establish a Dynamic Purchasing System (DPS) trainer framework to provide the project with a dynamic network of suitably qualified and experienced pan-Wales training providers. The trainers are invited to deliver horticultural training and life-long learning to individuals and groups under five lots:

- Lot 1: Practical Horticulture
- Lot 2: Science and Horticulture
- Lot 3: Horticulture and Art
- Lot 4: Horticulture and Crafts
- Lot 5: Horticulture Short Courses.

5.4 The DPS was split into two rounds. Round one consisted of an invitation to join the DPS via the completion of a qualification questionnaire and CV submission. The round was launched in July 2019 at the Royal Welsh Show and closed in August 2019. Round two, comprising of a qualification questionnaire, was launched in

August 2019 and will be open to ongoing applications until the Spring of 2022.

*Training programme development and courses*

- 5.5 GTF aims to deliver courses to adults and children to provide individuals with the skills and confidence needed to grow food, keep fit and help the environment. As of March 2020, 316 new training courses and 5,234 training days have been provided by GTF (surpassing the 2020 target of 964 days), with 9,921 unique participants across Wales (including both the Botanic Garden and partner hubs; Annex C).
- 5.6 According to the RDP application, the development of the training courses was to be based on the GTF pilot project and in consultation with partners at Tyfu Fyny.
- 5.7 It was reported to be a challenge finding horticulture trainers – which can be seen as a justification of the need for the project. The Project originally recruited two Horticultural Trainers (1: Adults; 2: Children) but owing to difficulties recruiting and retaining suitably qualified and experienced individuals, and changes to the Project's demands, the role was restructured into one in 2019. The Project added in staff time from existing Botanic Garden staff already contributing to the Project to supplement this – which was a benefit of being based at the Botanic Garden site. The current trainer (Ben) was previously on an apprenticeship scheme at the Botanic Garden and was further trained to act as a trainer. Clearly, recruitment is a major challenge to building the horticulture industry and it is hoped that GTF can train people at an individual level with a view to inspiring a number of participants to progress on to do full time courses and become trainers themselves.
- 5.8 The courses have been promoted via the GTF Marketing and Events Officer and have been advertised utilising a range of social media (see project inputs). Following the success of online booking for Sustainable Christmas 2018, Eventbrite has been utilised by GTF as

a means to book courses online; making it easier for participants to engage.

- 5.9 The adult courses provided by GTF have taken place at both the Botanic Garden and hub sites, and include a variety of focal points, including:
- Seasonality: Sustainable Christmas, Spring Bloomers
  - Food Production: Growing Organic Foods, Seed Sowing, Potato Planting
  - Garden Design: Building a Raised Bed, Planting Design
- 5.10 The approach to charging for courses within GTF has been aimed at achieving sustainability over the course of the project. According to team members, the variability of demand (only beekeeping courses and products of the hive have been consistently popular) has meant that GTF would not yet operate as a commercial enterprise, but it is close to breaking even. Adult courses are all charged, with children's and family courses provided for free, irrespective of location. The income to the project is used to deliver free training courses and develop other elements of GTF, such as the National Seed Bank of Wales. Workshops incorporating the SciHort networks are also free.
- 5.11 The use of free courses as a form of social prescribing is viewed by the delivery partners as important to expanding the reach of GTF to a wider audience.
- 5.12 Children's courses have been delivered across Wales, with an emphasis on:
- Wildlife: Great British Bird Watch, Hedgehog Houses, Pond Revamp
  - Gardening: Plan Me Plant Me, Introduction to Gardening, Tool Safety and Bed Preparation
  - Cooking and Food Production: Cookery Workshop, Planting Pea Shoots, Growing and Nutrition in Space

- 5.13 GTF has also engaged with children via school visits (outreach) by the Botanic Garden's Education staff, and through delivery by external trainers and partner hub sites. These are aimed at addressing some of the issues that schools face in teaching horticulture, such as a lack of experience, timetabling issues and a lack of infrastructure to support practical learning. Some delivery partners were keen to stress the benefit of taking the project into schools; something which has a strong potential legacy impact.
- 5.14 The Botanic Garden's Education Officer has been actively delivering outreach programmes. One example of outreach delivery includes school visits comprising either a six-week block or full/half day visits as a means to ensure longevity and sustainability in the teaching. Through the use of developed grab-and-go materials (including creating an edible rainbow garden, teddy-bears' picnic) the sessions focus on growing, wildlife and incorporating elements of the curriculum, particularly science and maths. The Education Officer also supports schools in achieving the Green Flag – an award for excellence in environmental action and learning.
- 5.15 Storm Dennis, in February 2020, caused substantial damage to GTF's classroom and resulted in courses being moved to other teaching areas within the Botanic Garden and one cancellation. The COVID-19 pandemic has also limited the ability of the GTF project to deliver face-to-face public engagements and has led to the initial cancellation of 30 pan-Wales courses. As a result, increased emphasis has been directed to online learning and information dissemination to offer virtual online training courses. As an additional activity, the COVID-19 outbreak presented the GTF project with the opportunity to highlight the importance of plants and gardens for health and well-being through the production of 150 bars of botanical and beeswax soap which were distributed to local Hub Schools for key workers.

*Online Learning*

5.16 The GTF project, alongside the delivery of training courses and events, aims to develop a wide range of courses for online learning. Online courses have also been stressed by delivery partners as vital during the COVID-19 pandemic, increasing information dissemination to a wider audience via free to download resources from the GTF website. It was highlighted how the flexibility demonstrated by the GTF team in adapting resources for online use has been a major success of the project during the COVID-19 lockdown period. The project was able to secure a range of technical resources (Osmo Pocket cameras, microphones etc.) to enable materials to be produced to a high quality in-house. This development has significantly broadened the audience for the project and has achieved substantial and potentially lasting engagement (see section 8 for details).

5.17 Examples of resources include:

- Virtual Courses: GTF have worked with Adam yn yr Ardd to create a series of weekly bilingual videos that provide advice on a range of topics including Watering Plants, Gardening with Nature and How to Sow Seeds
- Resources for Gardeners: online handouts and PDFs provide expert advice on how to garden and grow, including topics such as Early Summer Plants for Pollinators, Success with Seeds and Urban Gardening
- Activities for All: online handouts and PDFs provide fun activities for everyone to take part in such as Easy Beeswax Wraps, Fun and Frolics with Nature, and the Daily Nature Discovery Walk
- Learning at Home and at School: online information and downloadable documents provide education activities such as Bags of Potatoes and Pots of Carrots, The Veg Box and Wonderful Worms

5.18 Online course provision has increased the delivery of training through the medium of Welsh – previously problematic due to a lack of Welsh

speaking trainers. In December 2019, following an internal consultation of the best mechanism for online delivery, Konica Minolta Business Solutions (UK) Ltd were appointed to facilitate and enhance the online learning experience of the GTF audience using augmented reality and as a means to explore the Botanic Garden. The launch of this is anticipated in the coming months and further progress should be detailed within the next progress report.

### *Training Hubs*

- 5.19 GTF has developed training hubs to act as outreach centres and ensure a pan-Wales approach to the project that can engage with a wide audience group. The project has provided the hubs with financial support to develop new teaching areas with accompanying equipment and consumables.
- 5.20 The hub sites – which include existing and new relationships for the Botanic Garden – were determined following external meetings, based on criteria of fewer, bigger hubs in order to generate sustainable and long-term benefits. As of February 2020, six hubs have been established, these include sites at:
- Centre for Alternative Technology (CAT), Machynlleth
  - Clydach Community Garden, Swansea
  - Insole Court, Cardiff
  - Treborth Botanic Garden and Wild Elements, Bangor
  - Woodland Skills Centre, Denbigh
  - Ysgol Dyffryn Aman, Carmarthenshire.
- 5.21 These hub sites have provided locations for training courses for adults and children, events, and engagements under WP1 & 3 and ensured a pan-Wales approach to delivery of the GTF project. The partnership with the hub sites has had numerous benefits for all stakeholders, in particular, increasing collaboration across the horticultural sector as well as delivering positive transformations of the hub sites – for example, transforming Clydach Community Garden from an

overgrown wasteland into a dynamic garden at the heart of the community.

- 5.22 Although there has been strong participation in the courses and events at the hub sites, one of the delivery partners suggested that more needed to be done to ensure that the GTF project engages with a wide audience outside of the usual visitors to the Botanic Garden.
- 5.23 As of March 2020, the hub sites have been closed for events and engagement as a result of the COVID-19 pandemic.

### **WP1.2 – Public engagement, events, shows and activities for all**

- 5.24 The second element of WP1 aims to use innovative public engagement in order to provide bite-sized knowledge transfer on gardens for health and ecosystem gardening. By providing information over a short period of time, GTF aims to overcome the barrier of ‘not enough time’ - which prevents people becoming involved in growing –, engage with a wider audience and provide a platform that allows participants to progress further by taking one of the horticultural courses.

#### *Talk series and events*

- 5.25 GTF aims to develop a series of talks and events to be delivered to community groups throughout Wales, including at the Botanic Garden and hub sites, raising awareness of elements such as wildlife-friendly horticulture, habitat protection, horticulture and growing your own food as part of a healthy and balanced lifestyle.
- 5.26 The events are intended to be marketed through joint ventures with Tyfu Fyny, Tyfu Cymru, and Horticulture Wales. For example, In April 2019, GTF hosted the ‘Welsh Heritage Orchard Event’, delivered by fellow RDP Project Horticulture Wales. Both projects marketed the event across their independent social media platforms and weekly newsletters. GTF has also appointed a Marketing and Events Officer,

who promoted the events and talks through social media channels to maximise audiences.

5.27 To ensure the accessibility of talks, they have been held pan-Wales, utilising both the training hubs and the Botanic Garden, and include delivery by external expert stakeholders. Indicative of the types of talks facilitated by GTF was the free educational lunchtime lecture series (attended by 161 unique participants), held at the beginning of 2020 on Plants and Climate Change. The lecture series, comprising of 6 lectures across 3 Fridays, focused on the impact of climate change on plants, the research undertaken to overcome this, and the role of Botanic Gardens in tackling and adapting to climate change. Guest lecturers included:

- Emeritus Prof. Alayne Street-Perrott, Swansea University: Healing the Earth: Biochar for Carbon Sequestration and Habitat Restoration
- Prof. Mary Gagen, Swansea University: Tree Rings and Climate Change, Looking Back to See the Future
- Dr Paul Smith, Secretary General, Botanic Gardens Conservation International: The Role of Botanic Gardens in Mitigating and Adapting to Climate Change

5.28 Events have been held both internally (at the Botanic Garden) and externally at other shows and sites across Wales. Internal events have included:

- February Half-Term Activities for All (23 February to 3 March 2019): activities including 'Minibeast Handling' and 'Get Growing, Get Gardening' attracted 2,606 participants:
  - Minibeast Handling allowed visitors the opportunity to meet and touch leaf insects, giant millipedes, tropical beetles and hissing cockroaches, and were educated about what they can do to help support minibeasts in their gardens

- Get Growing, Get Gardening included horticultural based crafts, picking and making herbal teas, seed sowing activities, tips about growing plants for smoothies and super foods
- Well-being Garden Weekend (25-27 May 2019, 2,909 participants): the three-day event, attended by 2,900 visitors, had specific themes for each day of engagement:
  - Saturday 25 May: 'The Science of Well-being' - researchers from across Wales gave talks and answered questions about their research. The day highlighted the work going on to improve the well-being of Wales whether that be through conserving our environment and species, or through improving the quality of life for the people who live and work here
  - Sunday 26 May: 'Healthy Body, Healthy Mind - Mental Well-being Day' - focusing on different ways you can look after your mental health and offering the ability to get involved with charities and organisations who put mental well-being at the forefront of their work
  - Monday 27 May: 'Healthy Body, Healthy Mind - Physical Well-being Day' - focusing on a spectrum of different ways you can look after your physical health, which has knock on benefits to your mental health
- Pollinator Festival (24-26 August 2019): The event, which attracted 2,859 visitors, consisted of talks, guided walks, information and trade stands providing information surrounding work being carried out to preserve pollinators and their habitats across Wales. The event was consolidated by attendance from organisations such as the Wildlife Trust South and West Wales and the Woodland Trust, and local businesses selling products working with pollinators such as Afal y Graig Cider.

5.29 Externally, GTF has collaborated with shows in Wales, the UK and internationally, promoting the work and themes of GTF including:

- The RHS Flower Show Cardiff (April 2018): through working in collaboration with the Botanic Garden's Horticulture Department, GTF exhibited an inspirational and educational kitchen garden at the event
- Royal Cornwall Show (June 2018): GTF participated in a parade, honouring the 70<sup>th</sup> birthday of HRH Prince Charles, with a 'Plants for Pollinators theme'. This included a decorated beehive and wheelbarrows planted with pollinator friendly plants
- The National Eisteddfod (August 2018): during the event over the course of the week, GTF hosted several demonstrations and hands-on activities relating to the themes of the project
- The RHS Flower Show Cardiff (April 2019): again, via collaboration with the Botanic Garden's Horticulture Department, GTF exhibited a show feature garden, Gardd Lles (Well-Being Garden). Inspired by a forest, Gardd Lles was designed as a place to sit back, relax and soak up the health benefits of being in a green space. Based on the RHS national theme for 2019 of the positive effects gardening can have on health and well-being it featured two secluded seating areas that offered private spaces for a moment of quiet contemplation amongst a soothing and calming scheme of white and pastel. Gardd Lles allowed visitors to experience the benefits of a garden environment for health and well-being, removing them temporarily from the busy show environment.
- International Symposium of Korea National Arboretum (May 2019): GTF representatives delivered presentations on behalf of the Project at this event with 174 attendees. Presentation titles were:
  - An Arboretum for Wales
  - The Importance of Botanic Gardens for the Health and Well-being of People, Wildlife and the Environment

5.30 Due to COVID-19, several planned public engagements (three at the Botanic Garden and eight externally) have had to be cancelled or moved online. Closely aligned with and complementary to the development of online learning resources, the Project has increased its online public engagement through a series of Blogs. For example,

- Weekly Beekeeping blogs, by the Project's Ecosystems Trainer and Beekeeper, documenting the interaction between beekeeper and bees, and the tasks required to maintain thriving colonies throughout the bee season.
- It's Time to go Peat-Free, by the Project's Science Officer, providing an introduction to the science of peatlands, highlighting their importance to climatic-systems and biodiversity. The blog also provides tips and advice on choosing and utilising peat-free composts
- Get Started with Wildlife Recording in Your Garden, highlights that wildlife recording is extremely important, vital to painting the picture of long-term population trends. Now is a great time to get into wildlife recording, with all the time we are spending at home and the change in the weather. Readers are provided with free downloadable identification checklists of common hoverflies, bees, butterflies and moths

## **6. Progress of Celebrating Welsh Horticulture (WP2)**

6.1 Work Package 2 is focused on 'Celebrating Welsh Horticulture', utilising the public engagement of the Botanic Garden as a platform to showcase local and Welsh growers and the horticultural industry. The work package aims to provide a wider awareness to the public of the value of Welsh horticultural produce and encourage them to purchase more locally in the future. These public engagements take place through the organising of festivals and events that showcase the diversity and quality of Welsh horticultural produce. This section outlines the activities undertaken and examines progress against planned delivery and any outcomes arising from them at this mid-term stage of delivery.

### **WP2.1 Public Engagement: Festivals and Events**

#### *Delivery of Events*

6.2 The aim of the delivery of events is to provide a platform to promote Welsh horticulture with themed engagement around a variety of horticultural topics. GTF has a series of, now annual, seasonal events at the Botanic Garden, such as Daffodil Day in the spring and Apple Weekend during the late autumn. Through these events, the Project has provided a platform to 14 companies and charitable organisations to showcase their produce and work. Examples of events delivered so far include:

- Daffodil Day
- Orchid Festival
- Apple Weekend
- Pollinator Festival
- Fungus Day

6.3 As of March 2020, these events have driven 8,938 engagements across 33 unique information actions, over 14 days. Additional activities at event days, such as drop in sessions under, Activities for

All are represented in WP1, taking the numbers beyond the 8,938. Activities included guided walks and talks with experts from both the Botanic Garden and from other organisations.

- 6.4 The application for funding specified plans to deliver two major festivals during the GTF project dedicated to promoting Welsh suppliers and producers, as well as Welsh horticultural entrepreneurs. This activity was redesigned, however, to include a wide range of activities and suppliers into a programme of smaller events with broader coverage.
- 6.5 Although the training hubs discussed in section 5 are primarily designed to assist in the delivery of WP1, the Project aims to use some of the hubs, where suitable, as additional venues for delivery of more general events. This will further develop pan-Wales support and allow GTF to highlight businesses in localities beyond that of the Botanic Garden in South West Wales. An example of such an event was Draig Beats held at Treborth Botanic Garden (8/06/19), which included:
- Public engagement promoting and showcasing local suppliers, producers and food stalls, attracting 370 visitors
  - Educational mini-talks and workshops, on the theme of botany utilising botanical models, microscopes and craft activities, with 100 unique participants

#### *Attendance at External Events*

- 6.6 External events, such as the Royal Welsh Show and RHS Flower Show Cardiff have been avenues for additional showcasing beyond that envisaged by the original project plan. They present opportunities for marketing and engagement with different stakeholders to regular visitors to the Botanic Garden. The attendance at events such as the Welsh Beekeepers Association Convention, was supported by volunteers who were active in promoting the Project's events and activities whilst there. External events have been focused on delivering under WP1 but do also contribute to WP2 as platforms for

supporting Welsh Horticulture and disseminating information regarding plants for pollinators and WP3 under the Saving Pollinators Assurance Scheme. An example of such an event is the 'Potting Bench' run at RHS Flower Show Cardiff 2019 and the Royal Welsh Show 2019. The 'Potting Bench' was an informal area for drop-in sessions, activities and talks on horticulture by members of the GTF team and supported specialists. At the RHS Flower Show Cardiff, 15 practical sessions were delivered, supporting and showcasing 9 stakeholders from the horticultural sector, including Far Hill Flowers, Wales in Bloom and Pennard Plants. During the Royal Welsh Show, it was operated in collaboration with Tyfu Cymru and Brit Growers Ltd as an outlet for businesses supported by these organisations. The presence of other producers and suppliers at these events allowed GTF to signpost the support offered by all three organisations.

#### *Marketing Events*

- 6.7 The Project's Marketing and Events Officer, with support from the Botanic Garden's Head of Marketing and Communications, has coordinated the marketing and communications for the Project, which has been essential for delivery of events under WP2 (see project inputs). Marketing and communications have utilised a variety of media, including an active presence on social media; achieving a strong engagement on Facebook, Instagram, Twitter and YouTube (see section 4).
- 6.8 The Marketing and Events Officer is responsible for creating a newsletter containing information and updates about GTF as well as advertising the courses and events from all three work packages at the Botanic Garden and hubs around Wales. This is sent to a subscriber list of more than 5,000 people via a weekly e-mail. The newsletter has continued throughout the COVID-19 pandemic period, providing an outlet for continued training to members of the public with written content as well as instructional videos on gardening practices.

6.9 GTF and its events have been featured in newspapers with funded advertisements appearing in:

- Western Mail
- South Wales Evening Post
- Llanelli Star
- Carmarthen Journal
- Wales Online

6.10 Press releases and the involvement with the RHS Flower Show Cardiff and the Royal Welsh Show have also been covered by television and radio. GTF have appeared across an array of press, television channels and shows, including ITV, S4C and various BBC programmes. Below are press coverage highlights:

- 2020: Countryfile - piece with Dr Natasha de Vere on the importance of Botanic Gardens and pollinators
- 2020: BBC Radio Wales – Interview with Abi Lowe and Dr Laura Jones, covering the 20 years of the Botanic Garden and the pollinator research
- 2019: Coverage of the GTF and Insole Court partner hub site launch event was covered online, including [BusinessNewsWales](#), [West Wales Chronicle](#) and [The Blueprint Guide to Group Travel](#)
- 2018: Prynghawn Da S4C: interview with Abi Lowe and Steffan John, discussing the Growing the Future Project: <https://www.facebook.com/PrynghawnDaS4C/videos/1839181989482299/?t=15>
- 2018: How bees are being saved by every visitor to the National Botanic Garden of Wales: <https://www.walesonline.co.uk/whats-on/whats-on-news/how-bees-being-saved-every-14981246>
- 2018: Hoverfly foraging: <https://phys.org/news/2018-04-great-welsh-science-pollinator-puzzle.html>

- 2018 Tricky Taxonomy: the problems with naming new species, Guardian podcast with Dr Natasha de Vere:  
<https://www.theguardian.com/science/audio/2018/aug/03/tricky-taxonomy-the-problems-with-naming-new-species-science-weekly-podcast>
- 2018 Springwatch. Interview with Abigail Lowe. Feature on fascinating plant-pollinator interactions
- 2017: Scientists study how light affects butterfly behavior  
<https://www.bbc.co.uk/news/uk-wales-39016659>
- 2017: Bees' favourite plants revealed by Botanic Garden study:  
<https://www.bbc.co.uk/news/uk-wales-south-west-wales-39003201>
- 2017: Interview with Dr Natasha de Vere in The Biologist:  
<https://www.rsb.org.uk/get-involved/157-biologist>
- 2017: Gardeners' World. Interview with Laura Jones about her honeybee research. Beekeepers were asked to send us honey samples for DNA metabarcoding to find out which plants honeybees like best
- 2017: Countryfile. Interview with Laura Jones. Feature discussing our ongoing honeybee research and the early foraging results

6.11 COVID-19 has had a significant impact on WP2 in terms of the cancellation of both GTF events and attendance at external events throughout the spring/summer of 2020. An example of how the Project has overcome the challenges of lockdown was the Daffodil Day held on the 21<sup>st</sup> March. This event was the first to be affected but the GTF project was able to utilise social media in order to present the prepared daffodil display virtually instead. Utilising online learning and educating through different mediums will be essential for the Project going-forward.

*Platform for growers and suppliers*

- 6.12 Horticulture represents 10% (1,740) of Welsh land-based businesses and 8% of sector employment, making it the fourth most important employment sub-sector. GTF is actively supporting co-operation between Welsh growers and research taking place within the horticultural sector, particularly in relation to those who are operating in an environmentally sustainable way in the face of climate change and economic pressures. The events run by GTF are for the purpose of promoting and supporting Welsh horticulture businesses.
- 6.13 At the events run by GTF, businesses are able to have trade stands to promote and sell their produce to members of the public. The Botanic Garden welcomes over 160,000 people a year<sup>20</sup> and there is great value to Welsh producers in being exposed to these visitors. There is an added benefit for growers to be associated with the Botanic Garden brand. The Saving Pollinators Assurance Scheme developed as part of WP3 plans to highlight the quality of Welsh produce and the practices of the suppliers (see section 7).
- 6.14 The Botanic Garden has a strong brand across the horticultural sector in Wales and this has provided both the GTF project and specifically, WP2 events, the opportunities to develop partnerships with other organisations and signpost them to useful resources. Stakeholders noted that GTF is in close contact with the other projects in the RDP Horticulture Group, attending quarterly RDP Collaboration Meetings, hosted by Tyfu Cymru. Attendees include Lantra Wales, Tyfu Cymru, Tyfu Fyny, Horticulture Wales, Welsh Government, Cardiff University, Farming Connect, Sustainable Farming Consultancy and Sarpotatoes, Peas Please, Social Farms and Gardens, Monmouthshire County Council, Welsh Government Food Division, Food and Drink Board, Welsh Government Plant Health and Agroceuticals. Further collaboration with Tyfu Cymru has helped identify those producers who would like to benefit from showcasing at the events organised by GTF and their scope for future co-operation between the projects.

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<sup>20</sup> 2017-18 figures

- 6.15 It was noted that the GTF team collaborated closely with other projects (most notably Tyfu Cymru and Tyfu Fyny) in the design of GTF, ensuring complementarity without duplication.

*Creating display areas*

- 6.16 GTF aims to create displays that illustrate novel uses of horticultural produce and practices. The Botanic Garden will be assisted in the creation of these displays by specialist growers and they will highlight alternative methods as well as Welsh horticultural produce and plants that grow well in the Welsh climate.
- 6.17 The funding has enabled the redevelopment of the 'Bog Garden' at the Botanic Garden. This redevelopment will see the display replanted after excavation by the Botanic Garden's Horticulture Team and used to host events for WP2 and courses for WP1.
- 6.18 GTF has displayed a garden at the RHS Flower Show Cardiff in 2018 with the 'Future Kitchen' display and 'Gardd Lles' in 2019. The 'Gardd Lles' will form the basis of a courtyard garden development at Morriston Hospital, with installation delayed until the COVID-19 restrictions permit. Based on the RHS national theme for 2019 of the positive effects gardening can have on health and well-being it will feature two secluded seating areas in the garden that offer private spaces for a moment of quiet contemplation amongst a soothing and calming scheme of white and pastel. Inspired by natural hollows in forests this garden will be an opportunity for NHS staff, patients, and visitors to experience the benefits of a garden environment for health and well-being, removing them temporarily from the rest of the hospital environment. The garden has close links to the Biophilic Wales project, also run by the Botanic Garden.

## 7. Progress of Horticulture for the Future (WP3)

7.1 Work Package 3 aims to deliver ‘Horticulture for the Future’. It aims to do so by

- Creating networks between science and horticulture
- By building an evidence base to support future action for pollinators that can transfer to create a new market for sustainably produced plants for pollinators

The work package is delivered through two associated workstreams: SciHort: Science into Horticulture Conference and Networking (WP3.1) and Science into Horticulture Knowledge Transfer Case Study: Creating a ‘Saving Pollinators Assurance Scheme (WP3.2). This section will examine the progress of WP3 considering the activities delivered and their associated outcomes and impacts.

### **WP3.1 - SciHort: Science into Horticulture Conference and Networking**

7.2 The SciHort component of WP3 seeks to raise awareness of research that can support improved horticultural products and processes. The Strategic Action Plan for the Welsh Horticulture Industry<sup>21</sup> states that there is a need to identify research “gaps and encourage and co-ordinate new research where required” and to “collate and summarise results of relevant market intelligence and technical research and develop suitable communication tools to proactively disseminate to the industry”.

*Create networks between the Welsh horticulture industry and science and technology*

7.3 GTF acknowledges that currently horticultural research is not supporting the Welsh horticultural industry and therefore there is an opportunity to develop both the processes and the products that the

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<sup>21</sup> <https://gov.wales/sites/default/files/publications/2018-05/horticulture-industry-strategic-action-plan.pdf>

sector has to offer through strengthening the links between innovative research and commercial horticulture. There are excellent examples of activity within this sector within Welsh horticulture, but they tend to be fragmented and isolated with only one or a small number of holdings involved in production. The added-value that research can add to the market informs the desire to build links between the science and technology and the Welsh horticulture industry within this component of the 'Horticulture for the Future' work package.

7.4 As of March 2020, the GTF project has established a number of networks in order to improve the links between science and the horticulture industry. The current total across work packages, includes:

- WP1
  - The Project's Dynamic Purchasing System-Trainer Framework
  - Clydach Community Garden Volunteer Network
  - Specialist Member Association of Welsh Beekeepers Association
  - Bee Health Network
  - Bee Volunteers Network
  - Beekeeping Network: Master Beekeeping Module Training
- WP3
  - SciHort Workshops: Green Space Management
  - SciHort Workshops Network: Botany
  - SciHort Workshops Network: Soil Media
  - SciHort Workshops Network: Fungarium
  - SciHort Network: National Seed Bank of Wales

7.5 In the application for funding, the Project intended to develop five networks focused on a training participant network and a DPS training providers' network for WP1. For WP2 a network for producers involved in celebrating Welsh horticulture, and a further two networks for scientists and horticulture producers within the SciHort conference and for Plants for Pollinators producers in WP3. The Project has

adapted from the original plan to include networks established around the SciHort workshops, as well as four networks established around the beekeeping at the Botanic Garden. The role of beekeeping within the Botanic Garden has been a major success of the GTF project according to the interviews conducted with the delivery team. The beekeeping team, alongside eight regular volunteers and one part-time volunteer, have been integral to delivering beekeeping courses and engaging the public in the role of pollinators in horticulture.

- 7.6 Since the start of the GTF project the Botanic Garden's research team have published 7 peer-reviewed scientific publications that support the Saving Pollinators Assurance Scheme (Annex D). The research has involved a number of people from across the Botanic Garden including PhD students, members of the GTF delivery team, and volunteers. A key component of WP3 for the project is testing the latest scientific and technological advances to develop, test, and evaluate the Saving Pollinators Assurance Scheme (discussed in this chapter).

*SciHort conference for growers and scientists*

- 7.7 In order to identify and connect scientific and horticultural stakeholders, the GTF project aimed to hold an annual SciHort conference that would provide an opportunity for those conducting research in the horticultural sector to meet and exchange ideas with growers. This conference was intended to have consisted of presentations and workshops for participants, along with invited talks to illustrate best practice in this area.
- 7.8 During the initial delivery of the project, the Project Team re-positioned the SciHort conference as a number of smaller workshops around different topics of interest to the horticultural industry in Wales. These workshops were held at the Botanic Garden and the partner-hub site at Treborth Botanic Garden and were attended by 186 unique participants. The topics covered included:

- Let's Talk Compost! Exploring sustainable growing media and peat reduction
- Growing Orchids from Seeds
- Germination of Difficult Plant Species
- Biological Pest Control

7.9 Another workshop organised by the GTF project was held in June 2019 in collaboration with Carmarthenshire County Council focused on 'Green Space Management'. The day included several talks and five workshops, focussing on managing community green spaces for maximum biodiversity and human well-being, with 54 unique attendees.

7.10 These workshops have been well attended and advertised using GTF's, Botanic Garden's and stakeholders' social media feeds. Horticultural producers have been invited from throughout Wales and specialists from across the UK.

7.11 The strong links that the Botanic Garden already has with academia and scientific research taking place within the horticultural sector have allowed for members of the GTF team to attend conferences to share and disseminate research taking place at the Botanic Garden. Attendance of these conferences in South Korea, Norway, and Canada has allowed the Botanic Garden to promote itself and the research it undertakes, as well as promoting the GTF project.

### **WP3.2 Science into Horticulture Knowledge Transfer Case Study: Creating a Saving Pollinators Assurance Scheme**

7.12 Despite their importance, honeybees and wild pollinators are facing severe declines due to habitat loss, pests, disease and climatic change. The Botanic Garden has stated that domestic gardens can be important refuges for pollinators and there is a valuable market in 'pollinator friendly' plants that can be exploited by Welsh growers. The growing need to support pollinators is a key objective of the GTF project.

- 7.13 The Botanic Garden is seeking to build on the progress that Wales has achieved in terms of pollinators, becoming the first country to produce a national pollinator strategy<sup>22</sup>, and through the Botanic Garden's membership of the Pollinator Taskforce by creating a Saving Pollinators Assurance Scheme. This scheme will support growers by providing added value to their plants and will support pollinators and the environment. Assured plants on sale to the public in Wales will display the Saving Pollinators Assurance Scheme logo, showing that these plants are:
- proven to support pollinators by the Botanic Garden's research scientists
  - grown without the use of synthetic insecticides and peat compost
  - produced by Wales-based growers<sup>23</sup>.
- 7.14 The Saving Pollinators Assurance Scheme is intended to support growers by knowledge transfer from the scientific research taking place at the Botanic Garden. In doing so it is believed that Welsh growers can take a lead in the production of pollinator-friendly plants, not only adding value to their plants, but distinguishing the Welsh market from the whole of the UK, which has an ornamental plant market valued at £1.1 billion (DEFRA 2015). The Saving Pollinators Assurance Scheme seeks to provide a mechanism for small, specialist nurseries to gain a better market price for their product and make the horticultural sector in Wales more resilient.

*Science into Horticulture*

- 7.15 The Botanic Garden's Saving Pollinators research programme is an externally funded programme that uses DNA barcoding expertise and extensive horticultural resource to research the floral preferences of

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<sup>22</sup> <https://gov.wales/sites/default/files/publications/2018-05/horticulture-industry-strategic-action-plan.pdf>

<sup>23</sup> <https://botanicgarden.wales/science/saving-pollinators/saving-pollinators-assurance-scheme/>

pollinators, including honeybees, bumblebees, solitary bees and hoverflies<sup>24</sup>. Utilising the DNA barcoding to identify pollen from the bodies of pollinators, the research is supporting our understanding of what plants are most important for pollinators and to track which plants pollinators use throughout the year. Data has also been compiled from primary scientific research throughout the globe to identify suitable plants for pollinators. By conducting research into what plants are best for pollinators now and in the future, the research will ensure the adaptability and resilience of what is grown and produced in the UK to the challenges of climate change.

- 7.16 The Saving Pollinators Assurance Scheme, funded through the GTF project, therefore, seeks to disseminate and share the knowledge acquired from this research to growers and suppliers. As the application for funding acknowledged, there is still a problem that most ornamental plants sold in the UK are not attractive to pollinators and many plants currently sold as pollinator-friendly may be produced using insecticides. The Saving Pollinators Assurance Scheme will therefore allow the Botanic Garden to trial the feasibility of sustainable production methods, examine how attractive plants are to pollinators and their amenity value, and ensure that growers utilise this knowledge and consumers are able to identify this by the Saving Pollinators brand.

*The Savings Pollinators Assurance Scheme – Enterprises Assisted*

- 7.17 The Saving Pollinators Assurance Scheme is seeking to establish Welsh growers as leaders in the production of pollinator-friendly plants. As the previous section in WP3 has stated, the GTF project has sought to create networks between Welsh Horticulturists and growers and the Science Officer has played a significant role in ensuring that research findings from the Botanic Garden are disseminated and utilised by growers in the market.

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<sup>24</sup> <https://botanicgarden.wales/science/saving-pollinators/pollinator-research/>

- 7.18 The GTF project has worked alongside growers and Welsh nurseries to develop the Saving Pollinators Assurance Scheme. By March 2020, the Project was working with 22 Welsh nurseries: growing a range of pollinator-friendly plants without peat or synthetic insecticides. These nurseries have benefited from the scheme that promotes plants on sale in garden centres and nurseries that have been sustainably grown and proven to be beneficial for pollinators by the Botanic Garden's research. The scheme is intended to boost demand and sales of the assured plants with consumers increasingly seeking plants that 'save pollinators'.
- 7.19 In order to provide an opportunity for growers to trial different growing media, the Botanic Garden has offered an opportunity for growers and nurseries to trial different peat-free composts and sustainable plant pots. The trials also act as compensation for the time it takes the nurseries to attach stickers displaying the scheme logo to their plants and some of the risks associated with growing using sustainable methods. The GTF project has sought to promote the peat-free message by encouraging those nurseries which still use peat compost to switch to peat-free alongside raising awareness of the importance of switching to peat-free compost to the public, for example, contributing to the national Peat-Free April campaign. Unfortunately, due to COVID-19 the Peat-Free April events were unable to take place, but utilising blogs and horticultural teaching the GTF project is continuing to promote switching to peat-free growing<sup>25</sup>.

#### *Marketing and Communications*

- 7.20 The GTF project has developed a strong marketing campaign for the Saving Pollinators Assurance Scheme. S3 Advertising were appointed in December 2019 to design the branding and marketing materials for the Saving Pollinators Assurance Scheme. The marketing campaign will use a Saving Pollinators logo to advertise plants, which pass the criteria of the scheme (see Figure 7.1). The

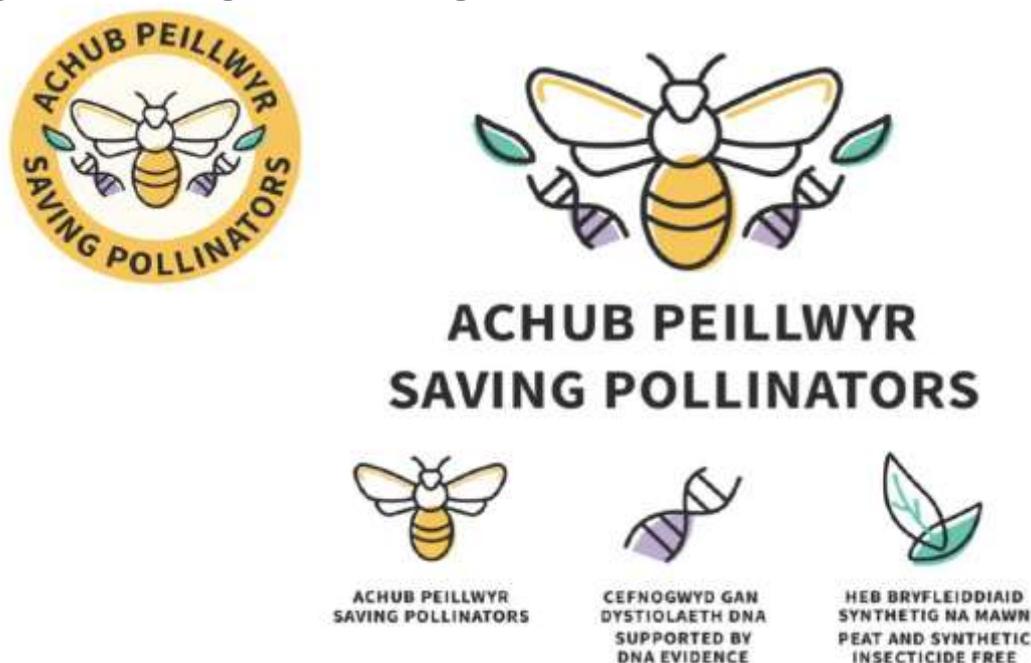
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<sup>25</sup> <https://botanicgarden.wales/peat-free/>

Project also seeks to establish links with garden centres to create a wider market for these plants.

7.21 An official launch of the scheme was initially planned to take place in April, but this was postponed due to the COVID-19 outbreak.

**Figure 7.1: Saving Pollinators logo**



Source: January-March 2020 Progress Report

### *Partnerships*

7.22 WP3 has developed links between science and horticulture through the SciHort workshops and the Saving Pollinators Assurance Scheme but these have been further developed through establishing links with other partners and organisations within the horticultural sector.

7.23 The GTF project has developed strong links with Tyfu Cymru to help disseminate and communicate findings (discussed in section 6). Specifically, in terms of WP3, partnerships with Tyfu Cymru have been utilised to identify producers who could benefit from joining the Saving Pollinators Assurance Scheme or attend the SciHort workshops'. Attendance at the workshops has allowed growers the

opportunity for horizon scanning and looking at the innovations of the future.

7.24 The Project has also developed strong links with other stakeholders across the horticultural sector through the attendance of events, networking at conferences and the organisation of workshops. An example of this in practice is the Botanic Garden attaining a Specialist Member Association of the Welsh Beekeepers Association. Through the work of the Project's Ecosystems Trainer & Beekeeper and the beekeeping team at the Botanic Garden, links have been developed that have informed delivery of courses, research and the Saving Pollinators Assurance Scheme. The Ecosystem Trainer & Beekeeper has now become the Chair of the Welsh Beekeepers Association (WBKA). This provides a significant opportunity to support the beekeeping sector within Wales.

## 8. Overall GTF Progress Summary

8.1 The Project is making good progress on all key indicators and is likely to exceed or achieve targets on all indicators by the end of the programme period.

**Table 3 - Project Indicator Progress**

Project Indicators	Project Target	Profile to Date	Progress to Date <sup>26</sup>
Number of actions / operations supported	374	184	527
Number of training days given	9,785	3,903	5,324
Number of unique participants in training	15,141	6,044	9,921
Number of jobs created	7	7	7
Enterprises assisted	10	10	28
Number of participants supported	77,540	40,000	61,607
Number of networks established	5	5	11

Source: Growing the Future

8.2 The Project contributes to the aims of the RDP at both Programme and case level, as follows.

### Contribution to Programme level indicators

8.3 Progress reports for GTF show three programme level indicators:

- The total number of actions supported

<sup>26</sup> From 20/05/2017 - 31/03/2020

- Number of training days given
- Number of unique participants in training

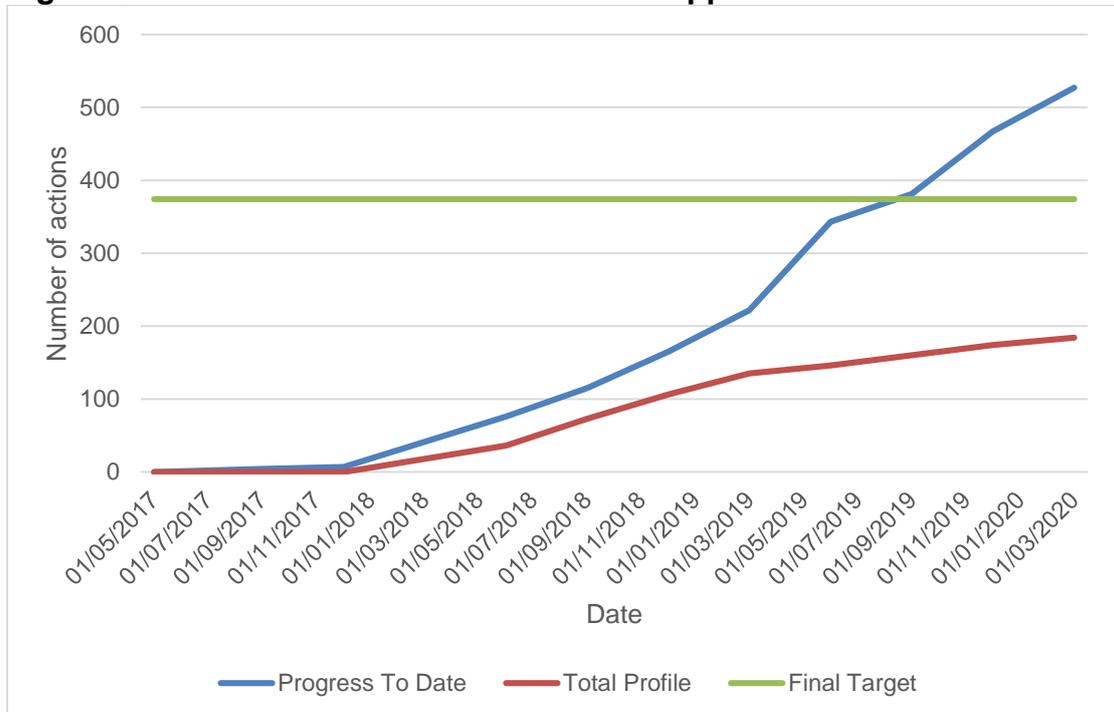
These are reviewed below:

*No. of actions supported*

8.4 The progress report for March 2020 shows a total of 527 actions supported, against a target of 374<sup>27</sup> and a profile target of 184 at that stage. These comprised 316 new training courses and 211 unique information actions. The development of new courses has increased quite dramatically, over the past 12 months. As an example, 104 training courses were delivered in Q1 2020, of which 58 were newly developed and this pace of development is likely to continue, especially with the change in emphasis to online delivery during the COVID-19 lockdown.

8.5 Clearly, the Project has substantially surpassed final targets, even at this stage of delivery on both the overall indicator and its components (Figure 8.1).

**Figure 8.1: Cumulative number of actions supported**



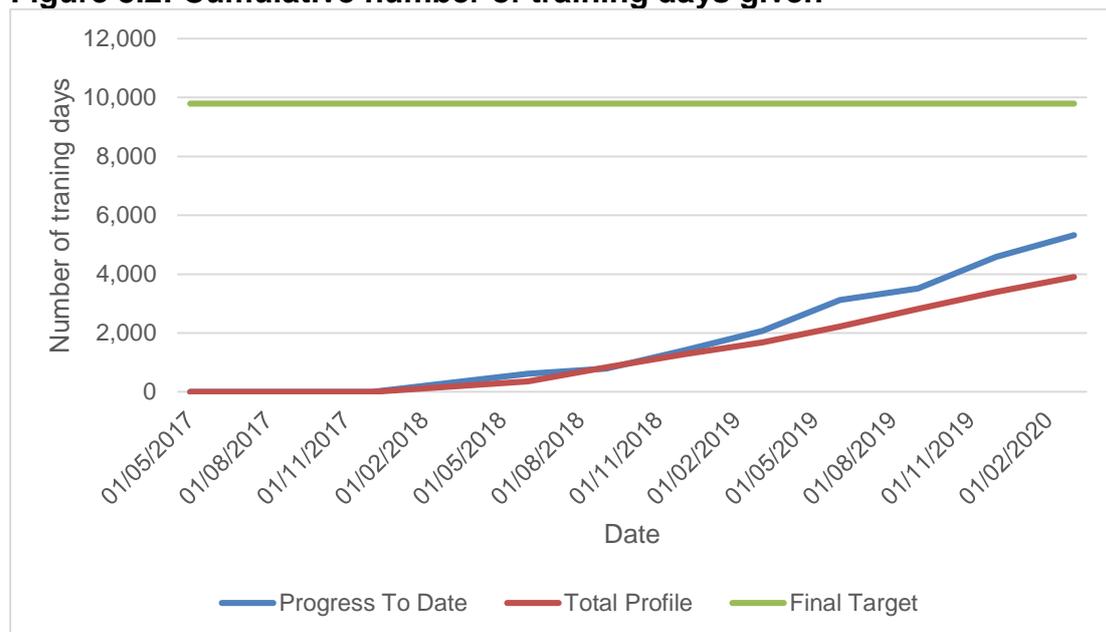
<sup>27</sup> Revised from the earlier target of 349

Source: Growing the Future

*No. of training days*

- 8.6 The delivery of training days was also significantly above profile at the time of the March 2020 progress report, with 5,324 days achieved against a profile target of 3,903. After a steady start at the beginning of the programme, the establishment of the hub network, growth in range of courses and development of outreach provision saw rapid growth in engagement during 2019 and this has been sustained to date (Figure 8.2).
- 8.7 Clearly the COVID-19 pandemic has significantly impacted on the ability of the Project to deliver face to face courses during both Q1 (30 courses cancelled) and the subsequent quarter. However, the opportunity has been taken to capitalise on a growth of interest in horticulture during lockdown, and online courses have seen significant growth in both development and participation. It is to be hoped that online demand for courses will persist once restrictions are lifted, as these provide improved access to a wider audience.
- 8.8 It should be noted that figures for online courses have been treated differently to face to face events, taking account of the shorter interactions. Hence, whereas standard adult courses are claimed at 6 hours, online viewings are treated according to their length by using the formula *Number of Participants x (Video length (hours) / 8 hours)* to give an equivalent in days.
- 8.9 Delivery appears to be comfortably on track to meet the final target of 9,785 by the end of project delivery, especially if the growth in online delivery can be maintained.

**Figure 8.2: Cumulative number of training days given**

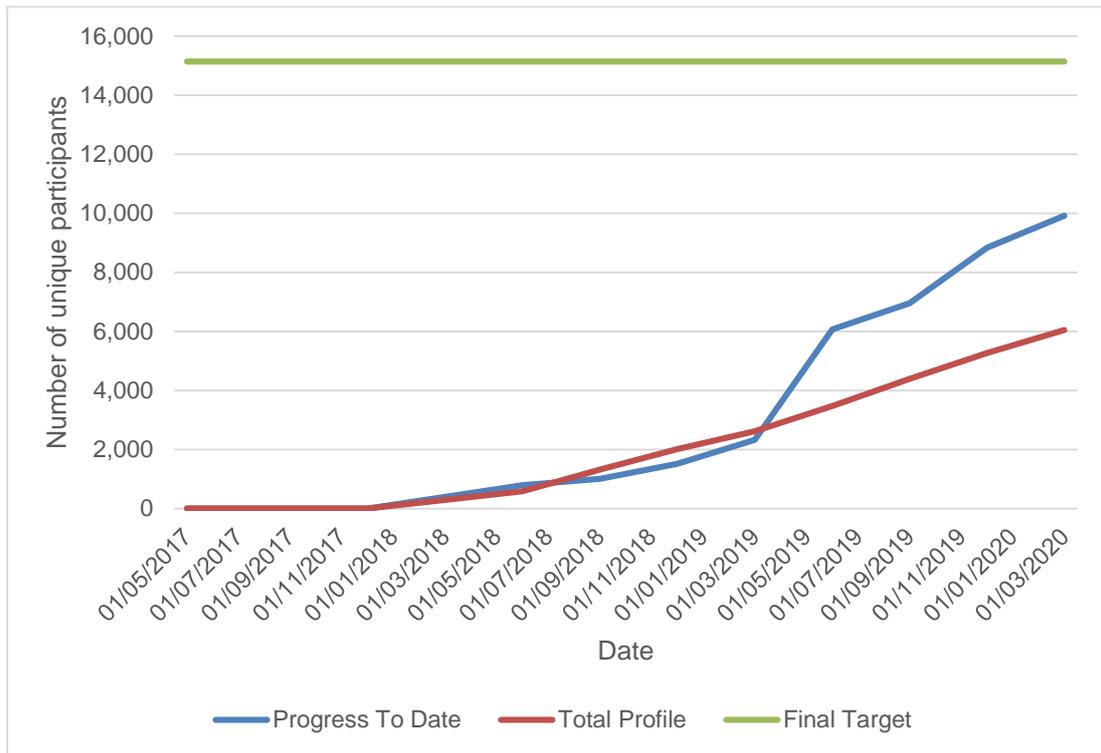


Source: Growing the Future

*No. of unique participants in training*

- 8.10 As of March 2020, total training participants stood at 12,607. The linked indicator of the number of unique participants in training was more than 50 per cent above profile at 9,921 (Figure 8.3).
- 8.11 The final output target of 15,141 should again be comfortably reached within the Project delivery period.

**Figure 8.3: Cumulative number of unique participants in training**



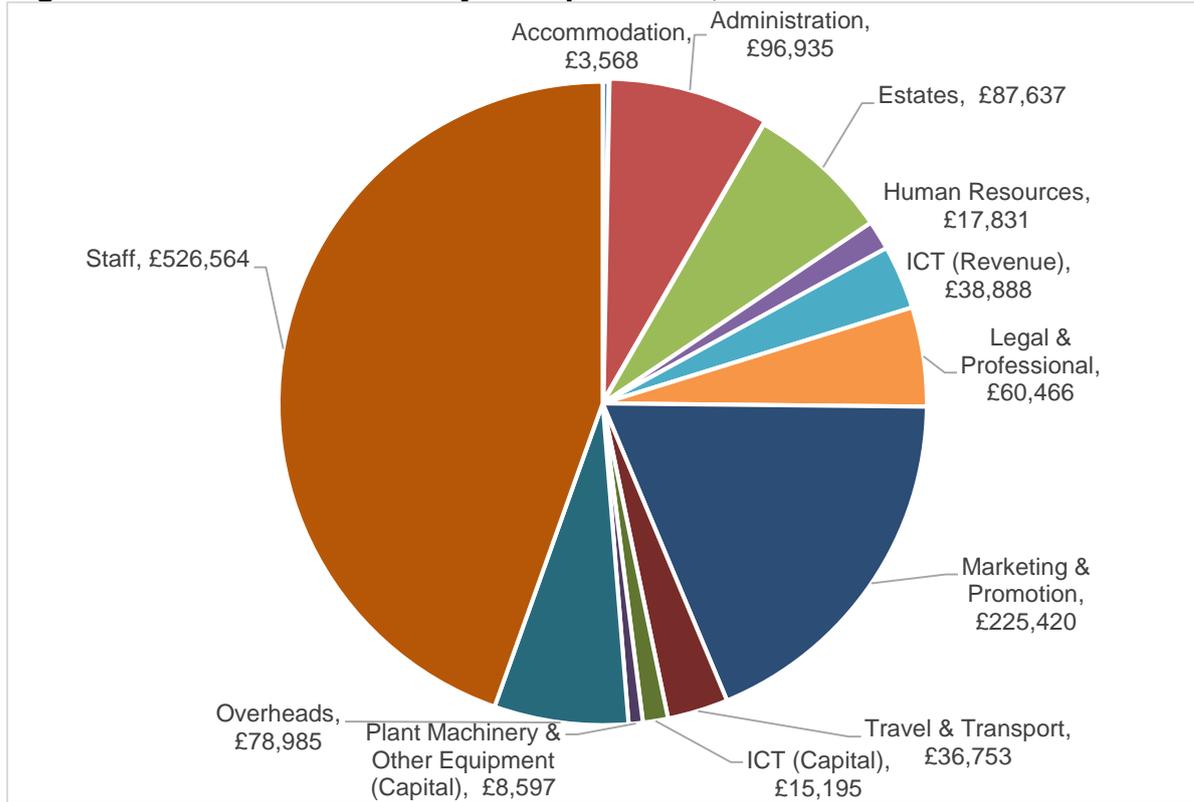
Source: Growing the Future

*Other Programme level Indicators*

8.12 At the outset, two additional programme level indicators were specified for GTF, although these were subsequently revised out:

- The first was total expenditure of £2,300,724. Although this is no longer classed as a specific indicator, it is reported on. In the March 2020 progress report, total cumulative expenditure of £1,196,839 was reported – of which the staffing accounted for 51% and other costs 49%.
- The second indicator was at least 10 holdings participating in supported schemes. We understand that this indicator was subsequently amended to the case level indicator of 10 enterprises supported through the Project.

**Figure 8.4: Distribution of Project Expenditure, March 2020**



Source: Growing the Future (All costs are revenue unless noted)

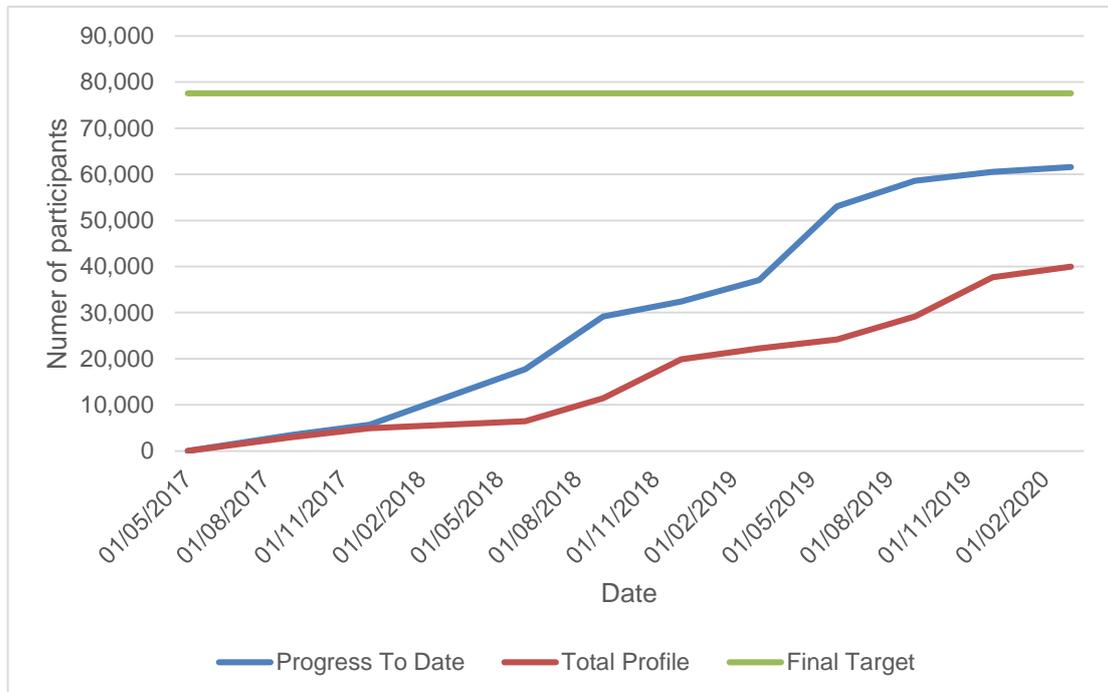
### Case Level Indicators

8.13 Four case level indicators were specified for the Project.

- *Number of jobs created.* This target was achieved in the setup phase of the Project, with seven jobs created.
- *Number of enterprises assisted.* The target of 10 enterprises assisted has been substantially exceeded, with 28 enterprises assisted by March 2020 including the hubs supported and the nurseries and growers engaged through the Saving Pollinators Assurance Scheme.
- *Networks established.* A total of 11 networks have been established (as at end Q1 2020), against a final target for five for the Project. These are based around SciHort workshop groups and those engaged in beekeeping.
- *No. of participants supported* This indicator relates to meaningful public engagements with materials and events

created by the Project. At the time of the March 2020 progress report, 61,607 participants had been supported in this way, which was more than fifty percent ahead of profile. The increased engagement online has led to some changes in the way indicators are recorded, to take account of the “one to many” approach enabled by web-based delivery. Public engagements with blogs and other material on the website will be recorded by website views, whilst social media messaging about events, for example, will be measured through engagement with the host site.

**Figure 8.5: Cumulative number of participants supported**



Source: Growing the Future

**Outcomes and Impacts**

*WP1*

8.14 WP1 is actively promoting awareness and increasing knowledge of gardening for health, well-being, growing food, keeping fit and helping the environment through a range of different activities, in a variety of

settings across Wales. Strong progress has been made towards the objective of WP1 to promote and provide training in the value of gardens for growing food, keeping fit and helping the environment, wildlife, and pollinators through the large number of people engaged through the delivery of events and the courses.

- 8.15 At this mid-term stage of delivery of the GTF project, it is difficult to attribute the outcomes and long term impacts of current delivery. However, the strong progress in the number of events and courses that have been delivered pre-COVID-19, suggests that the Project is likely to achieve its indicator targets of number of training days given, number of unique participants in training, and number of participants supported.

*WP2*

- 8.16 The desired outcomes stemming from WP2 are an increase in purchases of Welsh horticultural products, the reduction of food miles by increasing purchases from local suppliers and an increase in health through the promotion of local fruit and vegetable produce. Good progress has been made in showcasing Welsh horticulture at a variety of events both at the Botanic Garden and externally. One outcome that has been observed already is an effect of the promotion of all aspects of GTF at the events at the Botanic Garden. Volunteers for other areas of the Project have been recruited through hearing about different aspects of GTF at events such as the Apple Weekend.
- 8.17 It is too early to see many of the desired outcomes from the activities of WP2, but monitoring is in place in the form of questionnaires and interviews with the public and growers attending the events. Anecdotally, one of the key benefits of delivery to-date has been the contribution to well-being amongst participants, although this will be the subject of both further research in this evaluation process and in the Social Return on Investment (SROI) evaluations which complements it. Additionally, the final evaluation will be looking at the outcomes in much more detail as will a separate SROI analysis.

*WP3*

8.18 WP3 has sought to create networks between science and horticulture and conduct a knowledge transfer case study to create a new market for sustainably produced plants for pollinators. At this mid-term stage of delivery, a great deal of activity has taken place towards this work package and the breadth of what the GTF team has delivered has been impressive.

8.19 The combination of the two workstreams within WP3 have ensured strong progress has been made towards the indicators associated with WP3 including the number of enterprises assisted, the number of participants supported, and the number of networks established. Some of the outcomes have clearly progressed such as the development of the Saving Pollinators Assurance Scheme as well as decreasing the use of peat in Welsh horticulture. At this mid-term stage of the evaluation it is difficult to attribute the direct impact that the delivery of activities has had on the outcomes of the Project, this will come during the final stages of the GTF project. Nevertheless, the adaptability of those delivering WP3 suggests that all project targets will be met.

8.20 During the final stage of the evaluation, the Project will consider whether WP3 has enabled the:

- Creation of networks between the Welsh horticulture industry and science and technology research institutes
- Decrease in the use of peat in domestic and community gardens, and for growers in the Saving Pollinators Assurance Scheme
- Decrease in the use of pesticides in domestic and community gardens, and for growers in the Saving Pollinators Assurance Scheme
- Protection and conservation of pollinators throughout Wales by providing and encouraging the purchase of pollinator-friendly plants

- Creation of a Saving Pollinators Assurance Scheme. The knowledge gained from this work will be disseminated globally through conferences, workshops and scientific publications. It will create a model that can be adapted for use around the world

## 9. Cross-Cutting Themes

9.1 A key part of the evaluation of projects funded through the RDP 2014-2020 priority 1 - Knowledge Transfer and Innovation, is their contribution towards the cross-cutting themes of equality of opportunity and gender mainstreaming, sustainable development, tackling poverty, and Welsh language. The GTF Project Team has embedded consideration of these cross-cutting themes into the delivery of the Project.

### *Equality of opportunity and Gender Mainstreaming*

9.2 The GTF project was designed as a platform for maximising gender mainstreaming and equal opportunities for all. In order to do so the GTF project has tried to design the engagements for events and courses at the Botanic Garden for all sections of society. This has meant that engagements have been designed to meet the needs and engage with different groups of people. A key factor in ensuring greater equality of access to the activities undertaken by the Project has been the pan-Wales approach to delivery through the hub sites. These outreach centres have been designed to widen the groups of people that the Project are reaching and maximise audience participation amongst harder to reach groups.

9.3 Although equality of opportunity and gender mainstreaming has informed all aspects of the design and delivery of the Project, some members of the GTF delivery team suggested that more needed to be done to engage with a wider audience who are less likely to already visit the Botanic Garden.

### *Sustainable Development*

9.4 The GTF project actively seeks to promote sustainable development by supporting the acquisition of growing skills, which has been seen as fundamental to engaging and encouraging people to create sustainable communities, socially, economically and environmentally. The delivery of courses and other engagements not only seeks to develop the horticultural skills of participants but benefits the

community more broadly by underpinning social cohesion and raise an awareness of sustainability issues.

- 9.5 WP3 in particular has sought to strengthen collaboration between innovative research and the horticulture sector in Wales. The Saving Pollinators Assurance Scheme has developed networks between Welsh growers and the Science Officer of the Project, and that has ensured that research findings from the Botanic Garden are disseminated and utilised by growers in the market. Further to this, supporting growers and Welsh nurseries to be peat-free, synthetic insecticide-free and use sustainable growing practices has been a major success of the Project.

*Tackling Poverty and Social Exclusion*

- 9.6 The GTF project has recognised the issues of poverty and social exclusion and sees the potential of horticulture in overcoming these challenges. As stated in the application for funding, horticulture has a major role in the rehabilitation of those who are or feel excluded and those who have enduring physical and mental health issues. GTF offers free spaces on adult courses via social prescribing. The use of volunteers in the delivery of the course is a further example of the role that engaging in horticultural practices can have a person's quality of life (e.g. work at Clydach Community Garden and the significant proportion of volunteers with physical and mental health issues). A couple of interviewees commented on the role that volunteering as part of the Project has had on their health and reducing social isolation, and the work of the volunteers has to be seen as a key success of the Project.
- 9.7 For those participating in courses, attaining life skills and engaging with a community of horticulturists can have a number of benefits particularly in terms of accessing higher level training and employment. The GTF project has an intense focus on lifelong learning and fostering a desire to learn regardless of age, and this is

likely to have a number of wider benefits for both individuals and society.

- 9.8 The Saving Pollinators Assurance Scheme also provides a mechanism for small, specialist nurseries to gain a better market price for their product, increase the resilience of the horticulture industry and the financial sustainability of participant growers and nurseries.

*Welsh Language*

- 9.9 A key aim for the Project was to provide opportunities to engage participants with technical horticultural terms bilingually, providing a valuable cultural opportunity. The Project has supported the use of the Welsh language throughout delivery with full bilingual learning, training and engagement provided in the medium of Welsh and English. This has also included providing course materials, online delivery, social media and marketing communications being done bilingually. It was therefore essential for the Marketing and Events Officer for the Project to be fluent in both written and spoken Welsh and English.

## 10. Conclusions and Recommendations

10.1 It is too early to understand the full impact of the activities undertaken through the GTF project, however, at this mid-term stage of delivery, the GTF project has made strong progress towards its key indicators and is likely to exceed or achieve targets on all indicators by the end of the project period. Given the likely changes to delivery of the Project going forward, due to the impact of COVID-19, there are a number of opportunities for the Project to build on some of the successful delivery and engagement that has already taken place.

### *Work Package 1*

10.2 WP1 has made strong progress in terms of promoting awareness and increasing knowledge of gardening for health, well-being and keeping fit. The GTF project's pan-Wales delivery has ensured that delivery of events and courses have been offered in a variety of settings and pitched at differing levels of skill. Alongside a wide array of events and courses, the project has developed online resources, online courses, and downloadable activities to maximise the audience it is reaching. This, alongside the establishment of the hub sites to provide locations for training courses for adults and children, events, and engagements has meant that WP1 has contributed to a number of the key performance indicators of the project including the number of training days provided and the number of participants supported.

**Recommendation:** In order to demonstrate progress in WP1 more clearly and inform the evaluation, we suggest the following information is to be embedded in future monitoring reports:

- Information on the progress of the DPS (including number of training providers registered)
- Progress and uptake of online learning
- Status of project variations and an update on the rationale behind changes of delivery activities from original project plan

### *Work Package 2*

10.3 WP2 focused on building a platform to promote Welsh horticulture through the delivery of the events to showcase Welsh produce and businesses to the general public. There have been some major successes in terms of the delivery of these events with approximately 9,000 people being engaged. This work package has also included attendance at external events, that have ensured that the Botanic Garden and the GTF project are visible within the horticultural industry and the wider research community. This has included displays at RHS Cardiff in 2018 with the 'Future Kitchen' display and 'Gardd Lles' in 2019. Another success of the delivery of WP2 has been the redevelopment of the 'Bog Garden' at the Botanic Garden. Similarly, to WP1 the activities delivered as part of WP2 have been integral to the strong performance numbers in the key indicators of the project, which suggest that by project completion the project is likely to achieve and exceed its targets.

**Recommendation:** WP2 is clearly on track but the evaluation could benefit from progress reports being organised by work package. This would ensure that although activities have significant overlap across the different work packages, that they can be attributed to the aims of a particular work package.

#### *Work Package 3*

10.4 The combination of the two workstreams within WP3 has ensured strong progress has been made towards the indicators associated with WP3 including the number of enterprises assisted, the number of participants supported and the number of networks established. Some of the outcomes have clearly progressed such as the development of the Saving Pollinators Assurance Scheme as well as decreasing the use of peat in Welsh horticulture. The GTF project has established networks to improve the links between science and the horticulture industry. the delivery of the SciHort annual conference has adapted to the needs of the project, growers, and academia with the delivery of workshops instead. WP3 has been a major success for the GTF project since project inception.

**Recommendation:** The adaptability of project delivery, it was suggested by a number of stakeholders, has been important in the successful delivery of the project so far. To continue to build on the achievements of WP3, the project could benefit from noting what changes have taken place in terms of delivery from the original project plan and note these separately.

*COVID-19*

10.5 The GTF project will face some disruption from the on-going lockdown due to the COVID-19 outbreak. This is likely to include a drop in engagement and participation in courses and events due to the cancellation and lockdown measures that have been in place since March 2020. Although COVID-19 presents a number of risks for all RDP-funded projects over the coming years, the GTF project has shown necessary adaptability in delivery and strong project management to overcome these challenges.

**Recommendation:** The project has shown great adaptability in responding to lockdown measures and disruption of the delivery of course and events. The diversification of engagement will be essential in ensuring that the project reaches its key performance indicators between now and the final stage of delivery.

*Widening Audience Engagement*

10.6 Course and event attendance have been above the expected profile at this stage of delivery of the GTF project. However, some stakeholders suggested that more needed to be done to ensure that the project engages with a diverse audience, outside of the usual visitors attracted to the Botanic Garden. The project has a strong marketing and communications approach as well as delivering a diverse mix of activities both at the Botanic Garden and at hub sites, alongside online delivery. This suggests that the project has the potential to widen audience engagement.

**Recommendation:** Specifically targeting demographic groups in terms of marketing and communications and widening outreach

projects may attract 'new' audiences for the project and the Botanic Garden.

## Annex A – Survey Questionnaires

### Growing the Future - Tyfu'r Dyfodol English

1.



Thank you for taking part in the Growing the Future project at the National Botanic Garden of Wales.

This survey is a part of the efforts to assess the impact the project is having. In the following questions can you please share your experiences of taking part in the training and events supported by the project? These include gardening and horticulture, pollinators and beekeeping and cookery / arts courses. Courses took place at the National Botanic Garden and other sites, such as Clydach, Insole Court and Treborth. Any information you provide will be helpful to Growing the Future and the National Botanic Garden of Wales. All answers are treated anonymously and the data is not shared with any organisation unconnected with the Growing the Future project.

## 2. Your Course(s)

1. Would you say the course(s) / event(s) you took part in were mainly about [please tick all that apply]: \*

Horticulture / Gardening

Pollinators / Beekeeping

Arts, Craft and Cookery

Other (please specify):

### 3. About you

2. How long have you been interested in horticulture/gardening?

Less than a year

1-2 years

2-5 years

5-10 years

10+ years

3. What interests you most about gardening? Please rank in order 1 = most important 3 = least important

Health and fitness

General hobby

Environmental

4. How would you rate your previous knowledge of gardening?

- Beginner
- Intermediate
- Advanced

## 4. Pollinators and Beekeeping

5. How long have you been interested in pollinators and/or beekeeping?

- Less than a year
- 1-2 years
- 2-5 years
- 5-10 years
- 10+ years

6. What interests you most about beekeeping? Please rank in order 1 = most important 3 = least important

Creating healthy food

Meeting people / social benefits

Environmental benefits


7. How would you rate your previous knowledge of pollinators / beekeeping?

- Beginner

Intermediate

Advanced

8. Since taking in Growing the Future course(s) / event(s) do you do more or less of the following than before?

	1 - Much less	2 - A bit less	3 - About the same	4 - A bit more	5 - Much more
Physical activity	<input type="checkbox"/>				
Eating fruit and vegetables	<input type="checkbox"/>				
Eating organic produce	<input type="checkbox"/>				

9. Since the Growing the Future course(s) / event(s), would you say your garden is now more or less attractive?

1 - Much less

2 - A bit less

3 - About the same

4 - A bit more

5 - Much more

## 6. Awareness of Courses and Events

10. Where did you hear about the course(s) event(s)?

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- From a friend
- Social media
- Newsletter
- Newspaper
- Television
- Event
- Other (please specify):

11. Imagine that Growing the Future course(s) / event(s) had never existed. Would you have gone to a different course / event?

- Definitely not
- Unlikely
- Perhaps
- Likely
- Definitely

Do you know where?

12. Did you attend the Growing the Future course(s) / event(s) with anyone else?

Friend / Neighbour / Society

Partner / Spouse

Children

Other (please specify):

13. What were you hoping to get from the course(s) / event(s)?

## 7. Your Experience of the Course(s) / Event(s)

14. Please rate how much you agree with the following statements:

	1 - Yes	2	3	4	5 - No
The experience matched my expectations	<input type="checkbox"/>				
The experience offered good value for money	<input type="checkbox"/>				
The location was convenient	<input type="checkbox"/>				
There were sufficient materials/equipment on the day	<input type="checkbox"/>				

1 - Yes      2      3      4      5 - No

The trainers created an enjoyable environment/experience

Any Comments

## 8. Aspects of the Course(s) / Event(s)

15. How would you rate the skill level of the course / event?

- Too simple
- About right
- Too advanced

16. How would you rate the length of the course / event?

- Too long
- Too short
- About right

17. What would you say were the highlights of the day?

18. How likely are you to attend another course / event supported by Growing the Future?

- Very likely
- Somewhat likely
- Somewhat unlikely
- Very unlikely
- Don't know

Why?

19. Would you be interested in online learning?

- Yes
- No
- Don't know

20. Please tick if you have shared any new skills or knowledge you learnt from your course(s) / event(s) with any of the following:

- Your household
- Your wider family
- Friends or neighbours
- Gardening clubs
- Other community groups
- Didn't share learning / Don't know

## 9. After Taking Part

21. Since taking your Growing the Future course(s) / event(s), would you say that your mental wellbeing has changed at all?

- 1 - Much worse
- 2 - A bit worse
- 3 - About the same
- 4 - A bit better
- 5 - Much better

22. Since taking your Growing the Future course(s) / event(s), has there been any change in your sense of connection to nature and the Earth?

- 1 - A lot less connection
- 2 - A little less connection
- 3 - About the same
- 4 - A little more connection
- 5 - Much greater connection
- Don't know

23. Have you made friends with anyone you have met at a Growing the Future course / event?

- No
- Met some nice people on the course
- Have kept in touch with someone I met on a Growing the Future course

24. Thinking about your physical, mental and social wellbeing, to what extent have these changes been the result of Growing the Future?

Please slide the scale between 0% and 100% to show to what extent these changes have been the result of Growing the Future

## 10. National Botanic Garden of Wales

25. Are you aware that Growing the Future is run by the National Botanic Garden of Wales?

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Yes

No

26. After taking part in a course / event, what is your opinion of the National Botanic Garden of Wales?

27. Have you visited the National Botanic Garden of Wales?

	Yes	No
Have you visited the National Botanic Garden before?	<input type="checkbox"/>	<input type="checkbox"/>
Do you expect to visit in the future?	<input type="checkbox"/>	<input type="checkbox"/>

28. Since the Growing the Future course(s) / event(s), has there been any change in the amount of food you are producing?

Less

About the same

25% more

50% more

Double

More than double

29. To what extent has this change in growing your own food been the result of Growing the Future?

Please slide the scale between 0% and 100% to show to what extent these changes have been the result of Growing the Future

30. Since the Growing the Future course(s) / event(s), have you changed any of your gardening practices to be more sustainable or wildlife friendly? [Please tick all that apply]

No, my gardening practices were already sustainable and wildlife friendly

I now buy peat-free compost

I now grow more pollinator friendly plants

I now use fewer pesticides

I now garden organically

I now garden more specifically to encourage wildlife

Other (please specify):

31. Since the Growing the Future course(s) / event(s), has your lifestyle become more sustainable? [Please tick all that apply]

Buying more local produce

Buying more organic produce

Buying seasonal produce

Saving energy

Other (please specify):

32. Thinking about the changes in your impact on the environment, to what extent have these changes been the result of Growing the Future?

Please slide the scale between 0% and 100% to show to what extent these changes have been the result of Growing the Future

## 13. Demographics

We should be very grateful if you could please fill in the details below. The information is for Growing the Future and partners use alone and will not be shared with any unconnected organisations or used for marketing purposes.

33. Age in years

18-25

26-35

36-45

46-55

56-65

66+

34. Gender

35. Postcode

## Growing the Future - Tyfu'r Dyfodol Cymraeg

### 1.



Diolch am gymryd rhan ym mhrosiect Tyfu'r Dyfodol yng Ngardd Fotaneg Genedlaethol Cymru.

Mae'r arolwg hwn yn rhan o'r ymdrechion i asesu'r effaith mae'r prosiect yn ei gael. Yn y cwestiynau canlynol, allwch chi rannu'ch profiadau o gymryd rhan yn yr hyfforddiant a'r digwyddiadau a gefnogwyd gan y prosiect? Mae'r rhain yn cynnwys garddio a garddwriaeth, peillwyr a chadw gwenyn a chyrtsiau coginio / celfyddydol. Cynhaliwyd cyrsiau a digwyddiadau yng Ngardd Fotaneg Genedlaethol Cymru a safleoedd eraill, fel Clydach, Cwrt Insole a Treborth. Bydd unrhyw wybodaeth a roddwch yn ddefnyddiol i Tyfu'r Dyfodol a Gardd Fotaneg Genedlaethol Cymru. Ymdrinir â phob ateb yn ddienw ac ni rennir y data ag unrhyw sefydliad nad yw'n gysylltiedig â phrosiect Tyfu'r Dyfodol.

## 2. Eich Cwrs (Cyrsiau)

1. Fyddech chi'n dweud bod y cwrs (cyrsiau) / digwyddiad(au) y gwnaethoch gymryd rhan ynddyn nhw yn ymwneud yn bennaf â [ticiwch bob un sy'n berthnasol]:

- Garddwriaeth / Garddio
- Peillwyr / Cadw Gwenyn
- Celf, Crefft a Choginio
- Arall (nodwch):

### 3. Amdanoch chi

2. Ers faint ydych chi wedi ymddiddori mewn garddwriaeth/garddio?

Llai na blwyddyn

1-2 flynedd

2-5 mlynedd

5-10 mlynedd

10+ mlynedd

3. Beth yw eich prif ddiddordeb wrth arddio? Gosodwch mewn trefn 1 = y pwysicaf 3 = lleiaf pwysig

Iechyd a ffitrwydd

Gweithgaredd hamdden cyffredinol

Amgylcheddol


4. Sut fyddech chi'n graddio'ch gwybodaeth flaenorol o arddio?

Dechreuwr

Canolradd

Uwch

## 4. Peillwyr a Chadw Gwenyn

5. Ers faint ydych chi wedi ymddiddori mewn peillwyr a/neu cadw gwenyn?

Llai na blwyddyn

1-2 flynedd

2-5 mlynedd

5-10 mlynedd

10+ mlynedd

6. Beth yw eich prif ddiddordeb wrth gadw gwenyn? Gosodwch mewn trefn 1 = y pwysicaf 3 = lleiaf pwysig

Creu bwyd iach

Cyfarfod pobl / buddion cymdeithasol

Buddion amgylcheddol


7. Sut fyddech chi'n graddio'ch gwybodaeth flaenorol o beillyddion / cadw gwenyn?

Dechreuwr

Canolradd

Uwch

8. Ers dilyn cwrs (cyrsgiau) / digwyddiad(au) Tyfu'r Dyfodol ydych chi'n gwneud mwy ynteu llai o'r canlynol nag o'r blaen?

	1 – Llawer llai	2 – Ychydig llai	3 – Tua'r un faint	4 – Ychydig mwy	5 – Llawer mwy
Gweithgaredd corfforol	<input type="checkbox"/>				
Bwyta ffrwythau a llysiau	<input type="checkbox"/>				
Bwyta cynnyrch organig	<input type="checkbox"/>				

9. Ers cwrs (cyrsgiau) / digwyddiad(au) Tyfu'r Dyfodol, fyddech chi'n dweud bod eich gardd bellach yn fwy neu'n llai deniadol?

- 1 – Llawer llai
- 2 – Ychydig llai
- 3 – Rhywbeth yn debyg
- 4 – Ychydig mwy
- 5 – Llawer mwy

## 6. Gwybodaeth am Gyrsiau a Digwyddiadau

10. Lle glywsoch chi am y cwrs (cyrsgiau) / digwyddiad(au)?

- Gan ffrind
- Cyfryngau cymdeithasol

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Cylchlythyr newyddion

Papur newydd

Teledu

Digwyddiad

Arall (nodwch):

11. Dychmygwch nad oedd cwrs (cyrsiâu) / digwyddiad(au) Tyfu'r Dyfodol erioed yn bod. Fyddech chi wedi mynd i gwrs / digwyddiad gwahanol?

Na fyddwn, yn sicr

Annhebygol

Efallai

Tebygol

Byddwn, yn sicr

Ydych chi'n gwybod ymhle?

12. Wnaethoch chi ddilyn y cwrs (cyrsiâu) / digwyddiad(au) Tyfu'r Dyfodol gyda rhywun arall?

Ffrind / Cymydog / Cymdeithas

Partner / Priod

Plant

Arall (nodwch):

13. Beth oeddech chi'n gobeithio'i gael o'r cwrs (cyrsiau) / digwyddiad(au)?

## 7. Eich Profiad o'r Cwrs (cyrsiau) / Digwyddiad(au)

14. Nodwch i ba raddau ydych chi'n cytuno â'r datganiadau canlynol:

	1 - Oedd	2	3	4	5 - Noc oedd
Roedd y profiad yn cyrraedd fy nisgwyladau	<input type="checkbox"/>				
Roedd y profiad yn cynnig gwerth da am arian	<input type="checkbox"/>				
Roedd y lleoliad yn hwylus	<input type="checkbox"/>				
Roedd deunyddiau/offer digonol ar y diwrnod	<input type="checkbox"/>				

1 - Oedd

2

3

4

5 - Noc oedd

Roedd yr  
hyfforddwyr yn creu  
amgylchedd/profiad  
dymunol

Unrhyw sylwadau

## 8. Agweddau o'r Cwrs (cyrсияu) / Digwyddiad(au)

15. Sut fyddech chi'n graddio lefel sgiliau'r cwrs / digwyddiad?

Rhy syml

Iawn ar y cyfan

Rhy uchel

16. Sut fyddech chi'n graddio hyd y cwrs / digwyddiad?

Rhy hir

Rhy fyr

Iawn ar y cyfan

17. Beth fyddech chi'n ei ddweud oedd uchafbwyntiau'r diwrnod?

18. Pa mor debygol ydych chi o ddilyn cwrs / digwyddiad arall a gefnogir gan Tyfu'r Dyfodol?

- Tebygol iawn
- Gweddol debygol
- Gweddol annhebygol
- Annhebygol iawn
- Ddim yn gwybod

Pam?

19. Fyddai gennych chi ddiddordeb mewn dysgu ar-lein?

- Byddai
- Na fyddai

Ddim yn gwybod

20. Ticiwch os ydych chi wedi rhannu unrhyw sgiliau neu wybodaeth newydd rydych chi wedi'i ddysgu o'ch cwrs (cyrsiau) / digwyddiad(au) gydag unrhyw rai o'r canlynol:

Pobl sy'n byw gyda chi

Eich teulu ehangach

Ffrindiau neu gymdogion

Clybiau garddio

Grwpiau cymunedol eraill

Ddim wedi rhannu'r hyn a ddysgwyd / Ddim yn gwybod

## 9. Ar ôl Cymryd Rhan

21. Ers dilyn eich cwrs (cyrsiau) / digwyddiad(au), fyddech chi'n dweud bod eich llesiant meddyliol wedi newid o gwbl?

1 – Llawer gwaeth

2 – Ychydig yn waeth

3 – Tua'r un fath

4 – Ychydig yn well

5 – Llawer gwell

22. Ers dilyn eich cwrs (cyrсияu) / digwyddiad(au) Tyfu'r Dyfodol, a oes unrhyw newid wedi bod yn eich teimlad o gysylltiad â natur a'r Ddaear?

- 1 – Llawer llai o gysylltiad
- 2 – Ychydig llai o gysylltiad
- 3 – Tua'r un fath
- 4 – Ychydig mwy o gysylltiad
- 5 – Llawer mwy o gysylltiad
- Ddim yn gwybod

23. Ydych chi wedi gwneud ffrindiau gydag unrhyw un ydych chi wedi'i gyfarfod mewn cwrs / digwyddiad Tyfu'r Dyfodol?

- Naddo
- Wedi cyfarfod pobl ddymunol ar y cwrs
- Wedi cadw mewn cysylltiad â rhywun y gwnes eu cyfarfod ar gwrs Tyfu'r Dyfodol

24. Wrth feddwl am eich llesiant corfforol, meddyliol a chymdeithasol, i ba raddau mae'r newidiadau hyn o ganlyniad i Tyfu'r Dyfodol?

Nodwch ar raddfa rhwng 0% a 100% i ddangos i ba raddau mae'r newidiadau hyn o ganlyniad i Tyfu'r Dyfodol

## 10. Gardd Fotaneg Genedlaethol Cymru

25. Ydych chi'n gwybod bod Tyfu'r Dyfodol yn cael ei redeg gan Ardd Fotaneg Genedlaethol Cymru?

Ydw

Nac ydw

26. Ar ôl cymryd rhan mewn cwrs / digwyddiad, beth yw eich barn o Ardd Fotaneg Genedlaethol Cymru?

27. Ydych chi wedi ymweld â Gardd Fotaneg Genedlaethol Cymru?

	Do	Naddo
Ydych chi wedi ymweld â'r Ardd Fotaneg Genedlaethol o'r blaen?	<input type="checkbox"/>	<input type="checkbox"/>
Ydych chi'n disgwyl ymweld yn y dyfodol?	<input type="checkbox"/>	<input type="checkbox"/>

28. Ers cwrs (cyrsiau) / digwyddiad(au) Tyfu'r Dyfodol, a oes unrhyw newid wedi bod o ran faint o fwyd rydych chi'n ei gynhyrchu?

Llai

Tua'r un fath

- 25% mwy
- 50% mwy
- Dwbl
- Mwy na dwbl

29. I ba raddau mae'r newid hwn mewn tyfu eich bwyd eich hun o ganlyniad i Tyfu'r Dyfodol?

Nodwch ar raddfa rhwng 0% a 100% i ddangos i ba raddau mae'r newidiadau hyn o ganlyniad i Tyfu'r Dyfodol

30. Ers cwrs (cyrсияu) / digwyddiad(au) Tyfu'r Dyfodol, ydych chi wedi newid unrhyw rai o'ch arferion garddio i fod yn fwy cynaliadwy neu gyfeillgar at fywyd gwylt? [Ticiwch bob un sy'n berthnasol]

- Naddo, roedd fy arferion garddio eisoes yn gynaliadwy ac yn gyfeillgar at fywyd gwylt
- Dw i bellach yn prynu compost di-fawn
- Dw i bellach yn tyfu planhigion sy'n denu peillwyr
- Dw i bellach yn ddefnyddio llai o blaladdwyr
- Dw i bellach yn garddio'n organig
- Dw i bellach yn garddio'n fwy penodol i annog bywyd gwylt
- Arall (nodwch):

31. Ers y cwrs (cyrsgiau) / digwyddiad(au) Tyfu'r Dyfodol, a yw eich ffordd o fyw wedi dod yn fwy cynaliadwy? [Ticiwch bob un sy'n berthnasol]

Prynu mwy o gynnyrch lleol

Prynu mwy o gynnyrch organig

Prynu cynnyrch tymhorol

Arbed ynni

Arall (nodwch):

32. Wrth feddwl am y newidiadau yn eich effaith ar yr amgylchedd, i ba raddau mae'r newidiadau hyn o ganlyniad i Tyfu'r Dyfodol?

Nodwch ar raddfa rhwng 0% a 100% i ddangos i ba raddau mae'r newidiadau hyn o ganlyniad i Tyfu'r Dyfodol

## 13. Demograffeg

33. Oedran mewn blynyddoedd

18-25

26-35

36-45

46-55

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56-65

66+

34. Rhyw

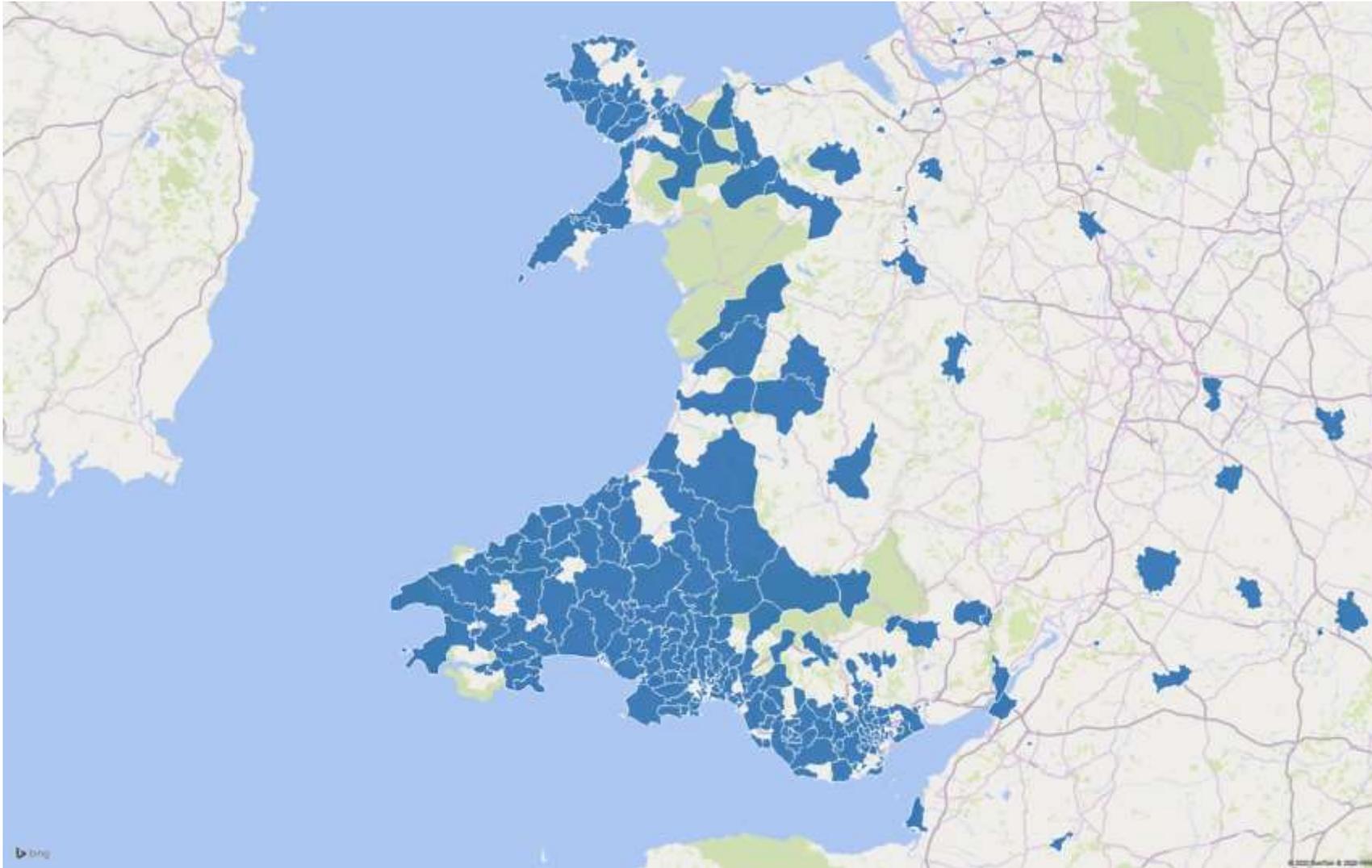
35. Cod post

## Annex B - Infographic on the Key Achievements of the Project

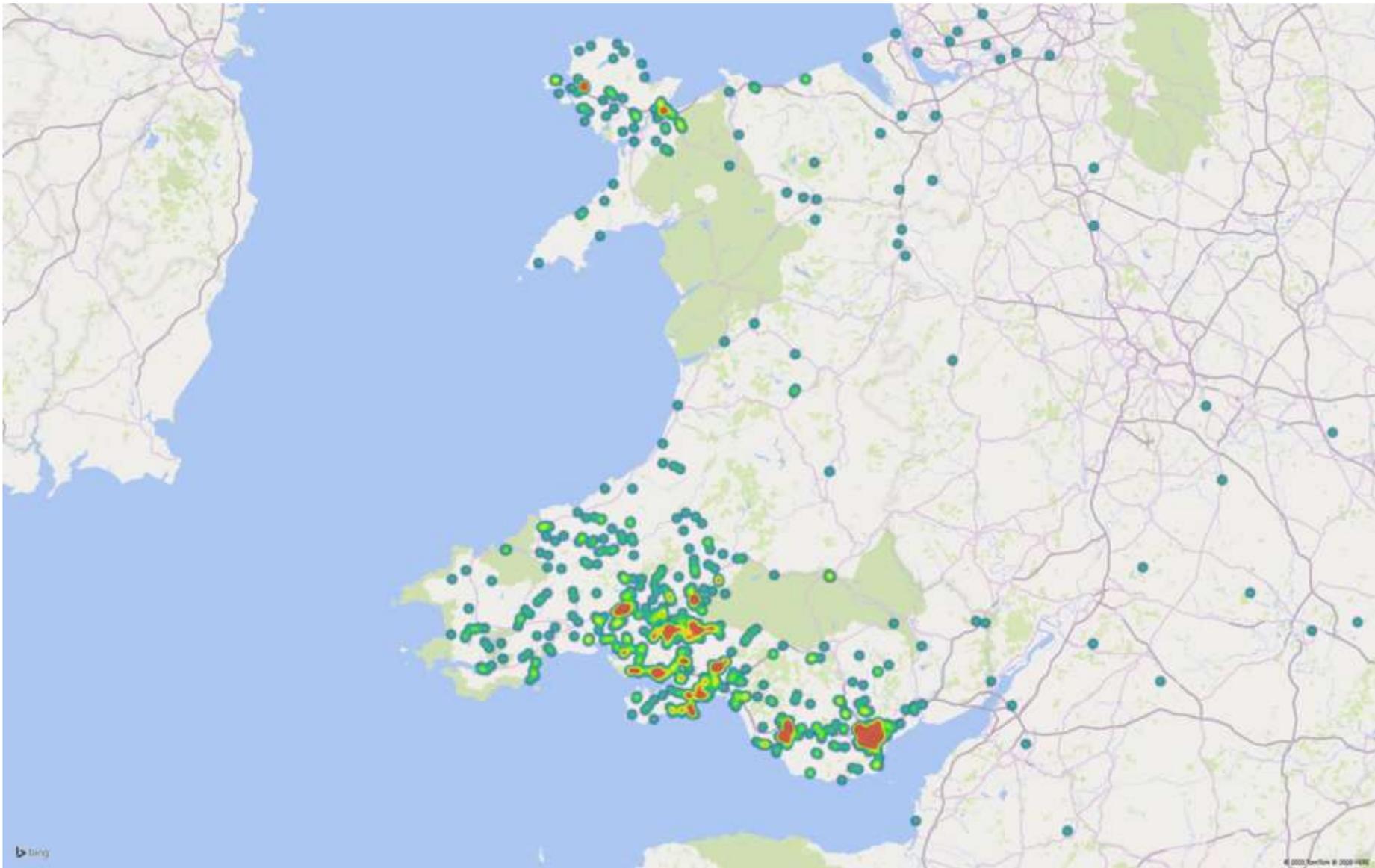


## Annex C - Distribution of Unique Course Participants

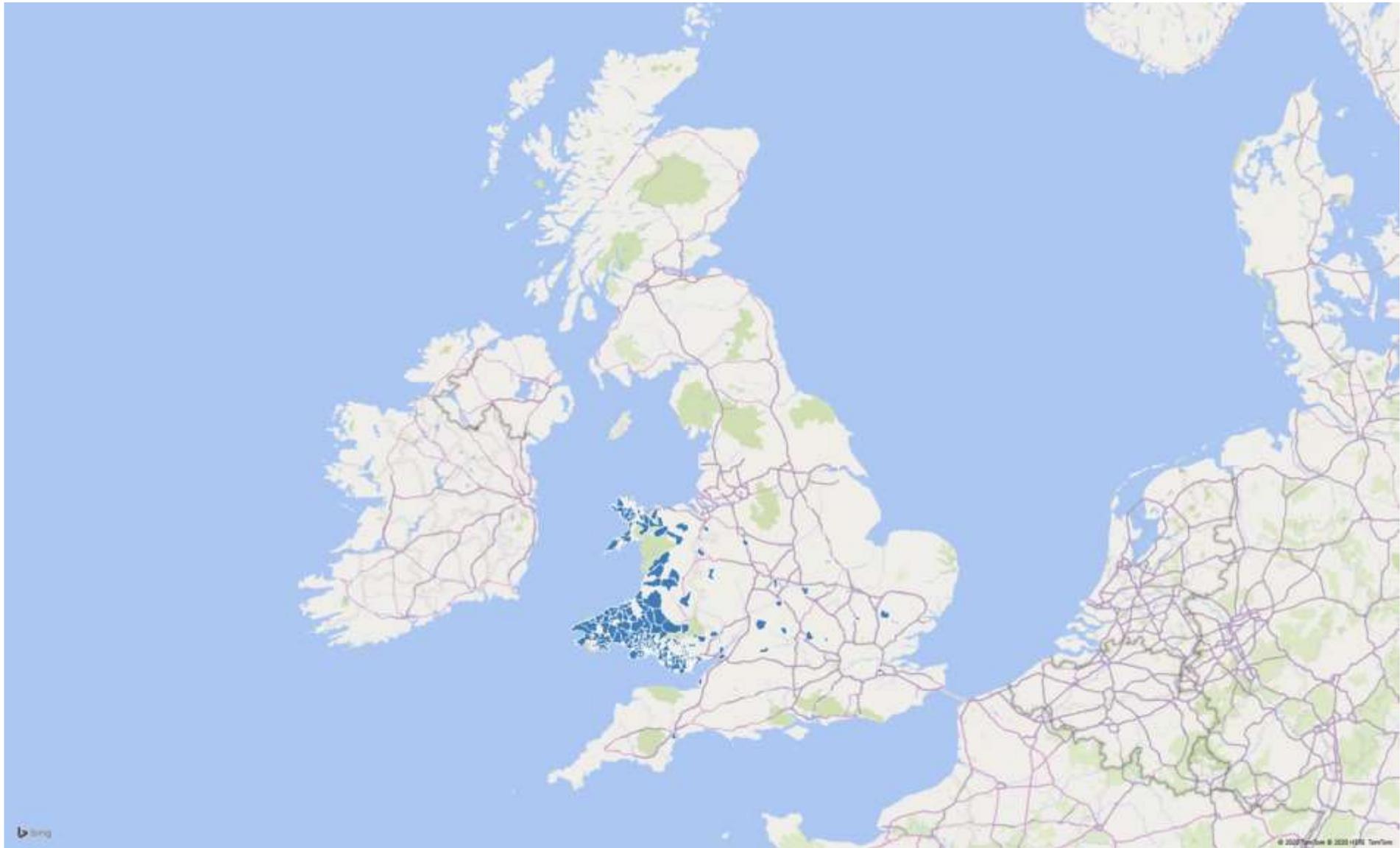
**Figure 1:** Distribution of Unique Course Participants by Region, Wales-Wide



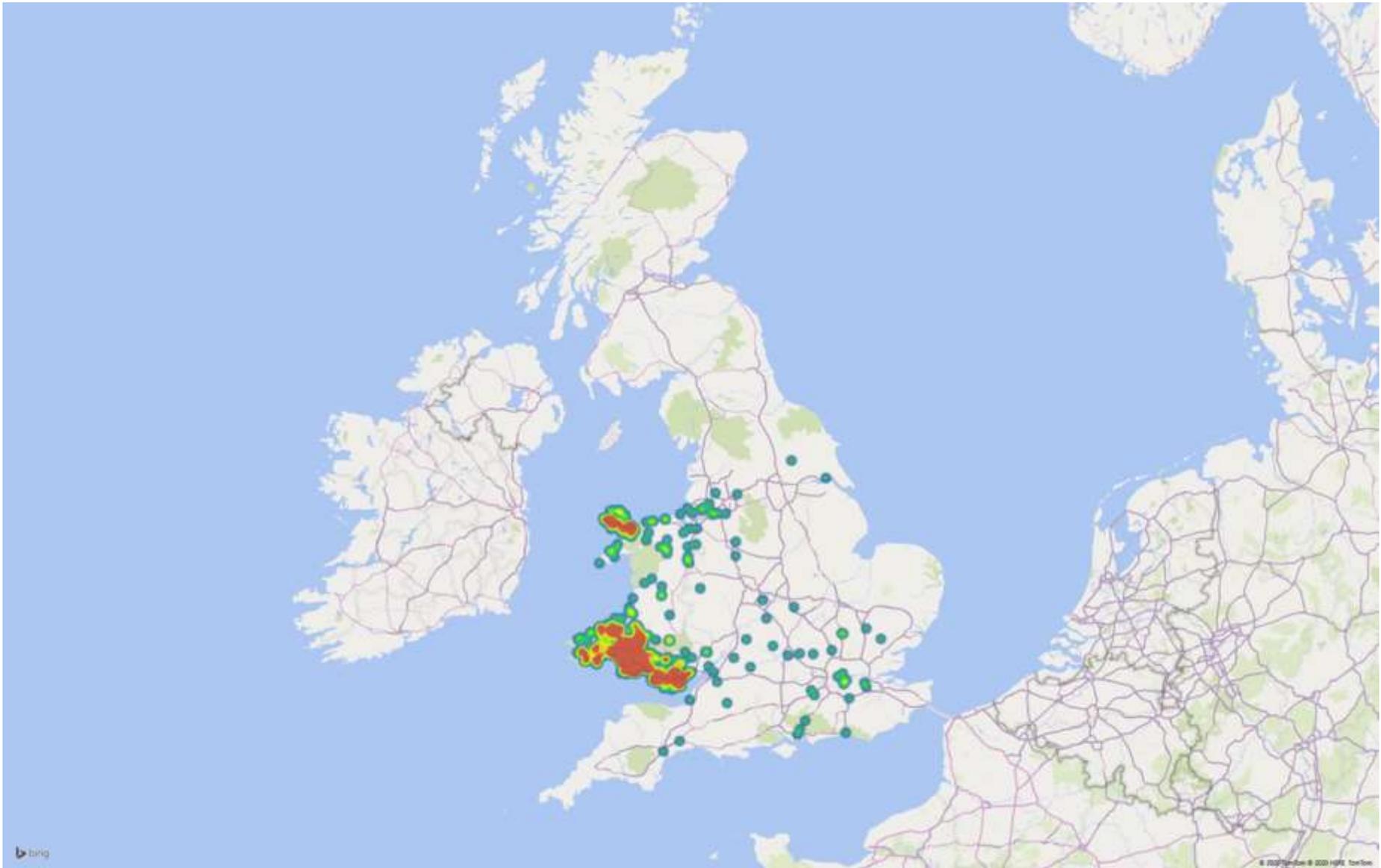
. **Figure 2:** Distribution of Unique Course Participants by 'Heat Map', Wales-Wide.



**Figure 3:** Distribution of Unique Course Participants by Region, UK-Wide.



**Figure 4:** Distribution of Unique Course Participants by 'Heat Map', UK-Wide.



## **Annex D - Scientific Publications Relating to the Saving Pollinators Assurance Scheme since the beginning of the GTF project**

Potter, C. Natasha de Vere, Laura E. Jones, Col R. Ford, Matthew J. Hegarty, Kathy H. Hodder, Anita Diaz & Elizabeth Franklin (2019). Pollen metabarcoding reveals broad and species-specific resource use by urban bees. *PeerJ*. 7, 22, e5999.

Lucas, A., Bodger, O., Brosi, B. J., Ford, C. R., Forman, D. W., Greig, C., Hegarty, M., Neyland, P. J. & de Vere, N. (2018). Generalisation and specialisation in hoverfly (Syrphidae) grassland pollen transport networks revealed by DNA metabarcoding. *Journal of Animal Ecology*, 87,4.

Lucas, A., Bodger, O., Brosi, B. J., Ford, C. R., Forman, D. W., Greig, C., Hegarty, M., Jones, L. E., Neyland, P. J. & de Vere, N. (2018) Floral resource partitioning by individuals within generalised hoverfly pollination networks revealed by DNA metabarcoding. *Scientific Reports*, 8, 5133.

Deiner, K., Bik, H. M., Mächler, E., Seymour, M., Lacoursière-Roussel, A., Altermatt, F., Creer, S., Bista, I., Lodge, D. M., de Vere, N., Pfrender, M. E. & Bernatchez, L. (2017) Environmental DNA metabarcoding: Transforming how we survey animal and plant communities. *Molecular Ecology*. 26, 21, p. 5872-5895.

Lucas, A., Bull, J. C., de Vere, N., Neyland, P. J. & Forman, D. W. (2017) Flower resource and land management drives hoverfly communities and bee abundance in semi-natural and agricultural grasslands. *Ecology and Evolution*.7, 19, p. 8073-8086.

Hamston, TJ, Wilson RJ, de Vere N, Rich, TCG, Stevens JR, Cresswell JE. (2017) Breeding system and spatial isolation from congeners strongly constrain seed set in an insect-pollinated apomictic tree: *Sorbus subcuneata* (Rosaceae). *Scientific Reports* 7, 45122.

de Vere N, Jones LE, Gilmore T, Moscrop J, Lowe A, Smith D, Hegarty M, Creer S, Ford CR (2017) Using DNA metabarcoding to investigate honeybee foraging reveals limited flower use despite high floral availability. *Scientific Reports* 7, 42838.