

The Heligan Wildflower Project

A case study illustrating the potential opportunities and benefits of wildflower seed production in Cornwall and the Isles of Scilly



Case Study – The Heligan Wildflower Project

Who should read this?

This case study will be of interest to any landowner, land manager, environmental practitioner or policymaker interested in how the production of local wildflower seed can boost local businesses, enhance biodiversity and increase the health and wellbeing of residents and visitors to Cornwall and the Isles of Scilly, and beyond.

Introduction

The [Lost Gardens of Heligan](#) are a 200-acre historical garden and estate in Cornwall. It is one of the top 10 visitor attractions in the South West of England, attracting 350,000 visitors every year. Alasdair Moore joined the Lost Gardens of Heligan team, as Head of Gardens and Estate, in 2018 after over 30 years of experience in horticulture. This new position allowed Alasdair to realise his dream of creating a large-scale source of wildflower seed through the Heligan Wildflower Project.

Alasdair tells us about the project...

The Heligan Wildflower Project successfully established a large meadow with cornfield annuals in 2019, which has flowered every year since. It has provided an unforgettable visitor experience, ample food for pollinators and an opportunity for additional business income.



“ Cornwall’s biggest industry is tourism... let’s make Cornwall the most beautiful, wildflower laden, glorious place to visit in the country! ”

Alasdair Moore, Head of Gardens and Estate, The Lost Gardens of Heligan.

We set up the project with the aim to:

- Increase pollinator numbers and biodiversity by seeding Valentines (a 15-acre field) with cornfield annuals.
- Develop a large wildflower display as part of the 2019 summer family program focused on pollinators (bees and butterflies).
- Explore the commercial possibilities of harvesting the wildflowers for seed.
- Work with the National Wildflower Centre, now based at the Eden Project, Cornwall.



Image © Alasdair Moore 2022. Since 2019, Valentine's meadow has been blooming with cornfield annual flowers providing a unique visitor experience at the Lost Gardens of Heligan.

What we did

The site: First, we choose our site – the Valentines' field. Traditionally, this had been used as a hay meadow with some light grazing, but over previous years had been planted with flax and used to keep pigs. Our first job was to prepare the ground for sowing. The options were to either spray off the grass cover or to deep plough. The Heligan team decided to deep plough. Whilst this had implications in terms of carbon release, we felt it the better option given the main aim of promoting pollinator populations, as spraying could potentially detrimentally affect the very creatures we were trying to support.

In order to have the wildflowers ready for our school holiday summer program, the flowering needed to take place from July to August, rather than during the natural flowering period of May to June. This meant that we had to sow the seed in April rather than in February-March. Valentines was ploughed and rolled in early April and seeded in late April, using a local contractor and a seed drill.

We worked closely with Richard Scott, Director of the [National Wildflower Centre](#), (now based at the Eden Project in Cornwall), who provided invaluable advice, without which, this would have been much more difficult to achieve.

The seed: The seed mix was bought from the National Wildflower Centre. It consisted predominantly of poppy seed in reference to the commemorations of the First World War that had been taking place



at Heligan for the previous four years. This was particularly expensive as it had been treated to increase its germination.

It was six weeks from the sowing date, before there was a period of meaningful rainfall. This meant that despite their quick germination, many of the seedlings initially died from a lack of moisture, and when the rains did arrive, a substantial portion of the surviving plants were stunted. Despite this, the top third of Valentines (where the pigs had been stationed) grew exceptionally well and this, therefore, was the area opened to the public.

Initially, the idea had been to cut a path right through the wildflower field, but due to the fact that many of the plants were stunted, we decided to change to more limited access. Taking up about 20% of the field, we cut a narrow meandering path which was roped along its length with supporting posts below the flowers' height. Every so often, additional 'lay-bys' were created.

| Weight | Species | Price | Total |
|------------------------------------|--|---------|--------|
| 50kg | Poppy (seed treated) (<i>Papaver rhoeas</i>) | £140/kg | £7,000 |
| 12kg | Cornflower (<i>Centaurea cyanus</i>) | £90/kg | £1,080 |
| 10kg | Corn marigold (<i>Glebionis segetum</i>) | £90/kg | £900 |
| 5kg | Corn chamomile (<i>Anthemis arvensis</i>) | £90/kg | £450 |
| 10kg | Corn cockle (<i>Agrostemma githago</i>) | £40/kg | £400 |
| Total | | | £9,830 |
| Total excluding treated Poppy seed | | | £2,830 |

Table 1. Species in the Heligan Wildflower Project year 1. Prices excluding VAT.

Straw bales were placed in these to allow visitors to sit down and enjoy the view. We also cut a number of cul-de-sacs leading off from the main path, extending into the field like fingers. These provided places for individuals to take a selfie / Instagram moment, excluding other visitors from the shot. We set up interpretation boards at a few points, explaining the importance of pollinators and what to look out for.

In mid-Sept, with Richard Scott's help, we harvested the field with a combine harvester. The crop yielded approximately 153kg of seed. Richard Scott estimated that a similar amount of seed would have been scattered throughout Valentine's during this process, essentially re-seeding the meadow for free. We saw a mini re-flowering of the field following the harvest - rather less dramatic than earlier, but still beautiful.

Valentine's was then power-harrowed in October. The residual seed bank produced another good show in 2020,

this time between May and June, with another approximate £153kg of seed being harvested (see Economic section below for more details).

In 2021 we had a very dry spring. This resulted in a reduction in the diversity of flowers in the display compared to the previous two years. The meadow was dominated by Corn marigold with just a light scattering of Cornflowers, Corn camomile, Corn cockle and the odd Poppy. As a result, we decided not to harvest in 2021 and left the bountiful harvest of seed as food for the finches and other wild birds.

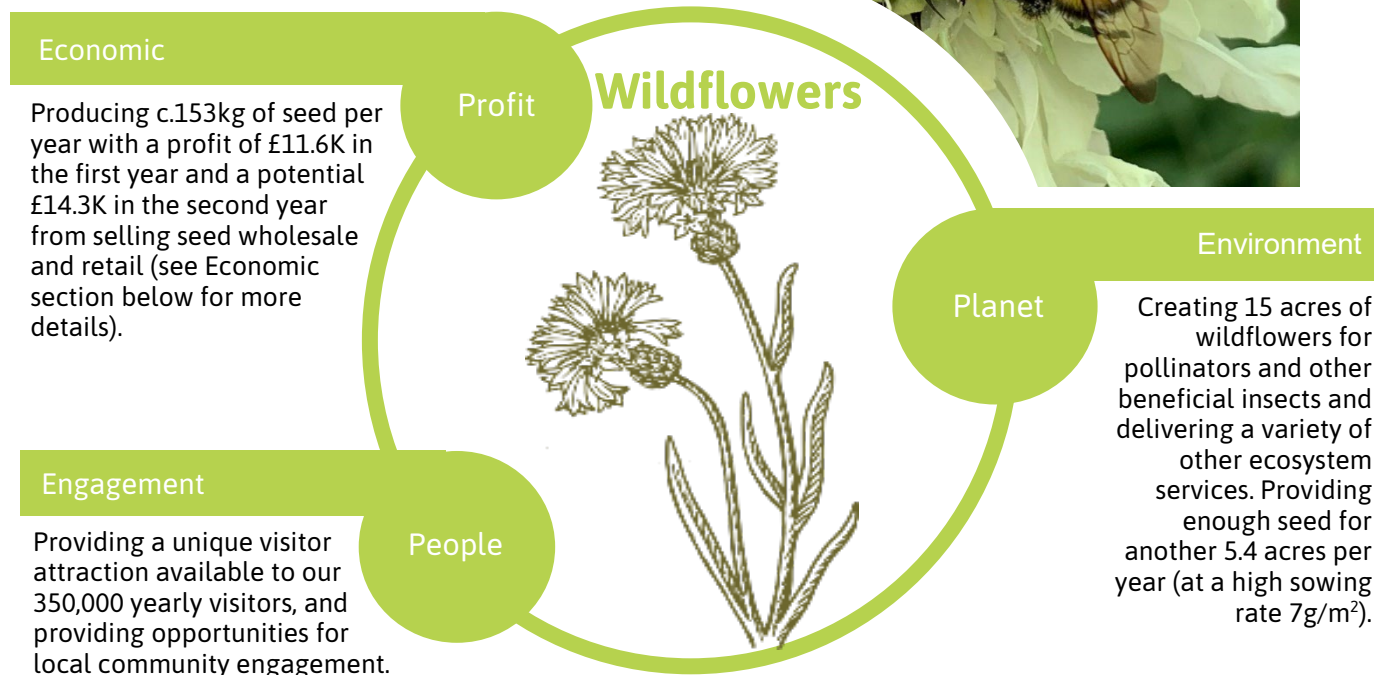
We took this opportunity to review our Heligan Wildflower Project strategy and as a result, are now looking to create annual and perennial wildflower displays in the future. These will provide even more benefits to biodiversity, increase carbon storage and provide important seeds for conservation projects.

“ I loved seeing a safe space for pollinators. It made me happy and was so beautiful. ”

An anonymous visitor to the wildflower meadow at the Lost Gardens of Heligan



The benefits



Engagement

The meadow was incredibly beautiful, and visitors were delighted. The effects of the initial drought on the bottom two-thirds of Valentine's field became negligible as the plants still flowered and were far enough away that nobody noticed they were knee-high rather than waist-high! Those that flowered in the top third of the field, surrounding the meandering path for visitors, looked spectacular. The poppies were not so evident, but it wasn't noticeable as the other flowers grew so well.

Preliminary user experience data collected in 2021 indicated that the wildflower meadow was influential in attracting and potentially re-attracting visitors and the extent to which it enhanced their experience whilst visiting Heligan, 30% of visitors to the meadow said that it was partially the reason for them visiting the Lost Gardens of Heligan, 79% would visit again to see the meadow, and 90% would recommend visiting the meadow to someone else.

Environment

We created 15 acres of wildflower meadow, harvesting approximately 153kg of seed per year (2019-2020).

We provided enough seed to sow an additional 5.4 acres of cornfield annuals each year (at a high sowing rate of 7g/m²).

Over two years, therefore, we estimated that we had created a total of 25.8 acres of wildflower habitat - the equivalent of over ten rugby pitches.

Research tells us that the pollinating work of wild bees is worth over £2.4K per hectare of the crop,¹ and we know that protecting and creating new flower-rich habitats is key to ensuring our invaluable pollinators thrive. Not only do wildflowers provide nectar and pollen for pollinators, they also support biodiversity, capture carbon and enhance other natural capital ecosystem services such as water and air quality.

Economic

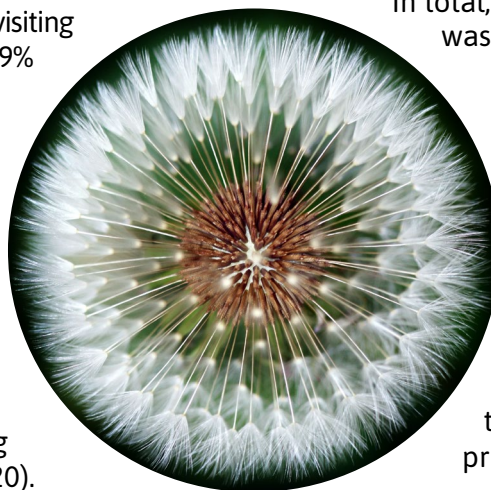
The seed harvest was professionally cleaned and separated at [Emorsgate](#) in 2019, and on-site by [South West Seeds](#) in 2020. The majority of the seed was sold back to the National Wildflower Centre. The rest was kept to retail to visitors in our shop, and over 10kg was donated to farmers wanting to establish annual meadows on their farms in Cornwall and the Isles of Scilly.

With a yearly amount of harvested seed of approximately 153kg, and bulk wholesale prices between £60/kg and £100/kg, this meant, at the highest, we had a wholesale estimate of £15,300 worth of seed. Added to this, was retail income from the sale of some of the 27kg of our seed that went into seed packs in our shop (selling at £2.95 for a 7g packet, with a multi-buy discount). In total, our gross income for 2019 was estimated to be around £17,749.

In 2020, we were affected by the Covid-19 pandemic. This limited our cash flow so we made an arrangement with The National Wildflower Centre to exchange our wholesale seed for their services of ground preparation and harvesting.

We paid for on-site seed cleaning by South West Seeds (£500). This meant that we didn't realise the previous year's profits. We did, however, retain our retail seed sales, which provided invaluable income during a challenging year for the business.

Table 2 shows the overall cost of the process in the first year and estimated for the second year if we had followed the same model as the first year (excluding the price of the poppy seed as this was largely unsuccessful). See our business case - Wildflowers: a case for engagement, environment, and economics for more detailed information.



| | 2019 | 2020* | 2021** |
|--------------|---------|---------|--------|
| Costs | £6,184 | £3,421 | £0 |
| Gross income | £17,749 | £17,749 | £0 |
| Net income | £11,565 | £14,327 | £0 |
| Yield | 153kg | 153kg | 0kg |

Table 2. Overall costs, income and yield from 2019-2020 from the Heligan Wildflower Project.

* 2020 estimate, based on 2019 model

** No harvest during 2021

In conclusion

- For us at Heligan, the initial investment was worthwhile alone simply for delivering a spectacular display of wildflowers for our visitors and providing an opportunity to engage them with our pollinator conservation message.
- However, also being able to pilot a business model for wildflower seed production and show that this can generate a net income of between £11,000 and £14,000 per year, was great news! We have shown that this is an opportunity for a genuinely profitable enterprise, both by selling seed wholesale, to the National Wildflower Centre, and retail, directly to our visitors under the Heligan brand.
- The fact that visitors to the Lost Gardens of Heligan can now experience our stunning wildflower display and then purchase wildflower seed grown from our Valentine's field, is proving to be a very attractive proposition that would seem to be attracting greater numbers of visitors.
- Our success at growing annuals has given us the confidence to consider growing perennial wildflowers as well. In this way, we can provide permanent habitats and food for pollinators and provide more seed for conservation projects across Cornwall and the Isles of Scilly.
- Our Heligan Wildflower Project has provided multiple benefits - for pollinators, the wider environment, our visitors and local community, and our business. We hope it inspires other businesses to grow wildflowers.

¹ Kleijn et al., (2015), Nature Communications, 6, 7414. This is a US study but provides a proxy for this ecosystem service. This paper combines USA and European results on the contribution of wild pollinators to a range of crops. \$3251 per ha converted to £2480 per ha using the exchange rate at time of writing.



“ In all my thirty years of horticulture, it [the Heligan Wildflower Project] is unquestionably my favourite project. Regardless of age group or background, everyone was moved by what they saw. ”

Alasdair Moore,
Head of Gardens and Estate, the Lost Gardens of Heligan.

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The South West partnership for Environmental and Economic Prosperity ([SWEET](#)) helps deliver economic and community benefits whilst also protecting and enhancing the area's natural resources.



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SWEEP is a partnership between the University of Exeter, the University of Plymouth and Plymouth Marine Laboratory. Funded by NERC, it brings together experts and stakeholders to solve key challenges faced by those working with our natural resources.