

RHS Bursary Report

The annual Euro Trials meeting and associated garden tours

in northern Germany, May/June 2017

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Ellerhoop-Thiesen Arboretum, Schleswig-Holstein

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Introduction

As part of my role as a trials horticulturist at RHS Garden Wisley I maintain the *Physocarpus* Euro Trial. Thanks to an RHS bursary, in May 2017 I attended the annual Euro Trials meeting. Euro Trials are plant trials run by organisations across Europe; the participating countries are: England, Ireland, Germany, Austria, Holland, France, Belgium and Finland. In England, the trials are organised by the Royal Horticultural Society at RHS Garden Wisley. Each year the Euro Trials meeting is held in a different participating country and this year it was held at the Centre of Horticulture, Ellerhoop, Schleswig-Holstein, northern Germany, where there are Euro Trials of *Physocarpus* and *Hibiscus*. As well as attending the meeting, I went on visits to nurseries and gardens in the region organised by Dr Andreas Wrede, head of tree nursery research at the Centre.

The aims and objectives of the tour are outlined below, followed by the itinerary. As well as attending the Euro Trials meeting and associated tours, I took the opportunity to visit nearby Hamburg Botanic Garden and its display glasshouses, the latter located at a different site. The Centre of Horticulture, Ellerhoop, the arboretum and all but one of the nurseries visited are in the state of Schleswig-Holstein, which is the northernmost of Germany's 16 states. Located between the city state of Hamburg and the Danish border, this region is a predominantly flat agricultural landscape, with big skies punctuated by distinctive old barns (Figures 1 and Figure 2). All the locations visited are marked on the maps (Figures 3 and 4).



Figure 1 Typical Schleswig-Holstein landscape



Figure 2 Schleswig Holstein barn, Ellerhoop

Aims and objectives of the bursary tour

The aims and objectives of this bursary-funded visit to Germany were to:

- Attend and participate in the annual Euro Trials meeting.
- View the *Physocarpus* and *Hibiscus* trials at the Centre of Horticulture, Ellerhoop.
- View other horticultural trials and experiments at the Centre for Horticulture, Ellerhoop.
- Develop my knowledge of German gardens and nurseries and their management.
- Create networking opportunities with European horticultural professionals.

Itinerary

Tuesday 30.05.2017

- Flew to Hamburg from London Gatwick.
- Visited Hamburg Botanic Garden.

Wednesday 31.05.2017

- Attended Euro Trials annual meeting at the Centre of Horticulture, Ellerhoop, Schleswig-Holstein.
- Viewed the trials and experiments in the Experimental Station of the Centre of Horticulture, Ellerhoop (including *Physocarpus* and *Hibiscus*).
- Visited the Ellerhoop-Thiesen Arboretum (including a guided tour through the Park).

Thursday 01.06.2017

- Visited:
 - Lorenz von Ehren Nursery, 21077 Hamburg.
 - Kordes Rosen, 25365 Klein Offenseth-Sparrieshoop, Schleswig-Holstein.
 - Nursery Kordes – Jungpflanzen, 25485 Bilsen, Schleswig-Holstein.

Friday 02.06.2017

- Visited Pflanzen un Blumen park and its display glasshouses, Hamburg.
- Flew to London Gatwick from Hamburg.



Figure 3 Map showing northern Germany with Elleroop marked

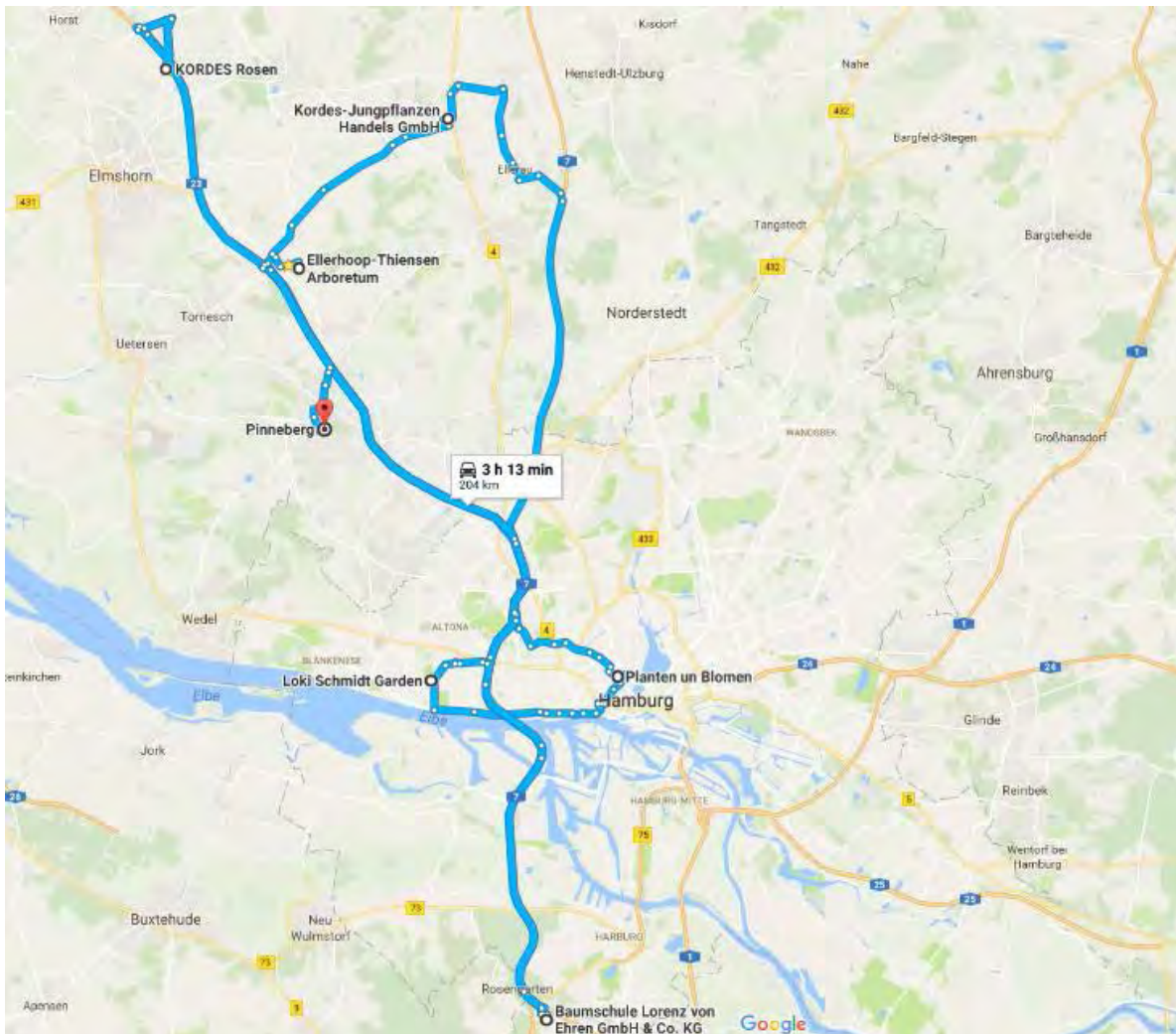


Figure 4 Locations visited, the Centre of Horticulture is next to Ellerhoop Arboretum. Pinneberg, the centre of the regions tree nursery industry, is also marked

Hamburg Botanic Garden

Hamburg Botanic Garden (also known as the Loki-Schmidt Garden) was the first garden I visited. These gardens, 25-hectares in size, are part of the University of Hamburg and have only been on their current site, in the Klein Flottbek suburbs, since 1979. They moved to this area from central Hamburg when they needed more space (Weber, 2014). The gardens display glasshouses are still located on their original site, in Hamburg's Planten un Blomen park, which I visited on the last day of the tour.



Figure 5 *Salvias* going in the ground for the summer, Hamburg Botanic Garden

One of the most interesting features of the botanic garden is its *Salvia* collection, which I saw gardeners planting out for the summer (Figure 5). These included *Salvia mexicana* 'Limelight' and *Salvia microphylla* 'Trelissick'. The *Salvia* collection here was started in 1999 and now "consists of about 300 species and varieties, of which about 200 are presented in the summer months in the open air" (Köpcke, 2017). The collection was "initiated by Hamburg gardeners, who wanted to collect horticulturally interesting forms to test them for use as an ornamental plant and present them during the season in the open air" (Botanic Garden Hamburg, n.d.). It was not possible because of the language barrier to get detailed information about the *Salvias* while visiting, especially as the *Salvia* specialist, Volker Köpcke, was not available on the day. However, the visit inspired further research once home. For example, I found out the garden's speciality in *Salvias* mean they have been asked to take over other collections of the genus, such as "the extensive collection of Jennifer

Warschun”, including “*Salvia saggitata*, *Salvia bullulata* 'Pale Form' and the sage hybrid 'Costa Rica Blue' “ (Ibid).



Figure 6 Japanese Garden, Hamburg Botanic Garden

Other areas of the garden I saw included a sensory garden, which emphasises smells and touch, so it appeals to people with, for example, limited sight, and a magnificently maintained Japanese Garden (Figure 6).

Euro Trials Annual Meeting at the Centre of Horticulture, Ellerhoop

After visiting Hamburg Botanic Garden, I travelled to my hotel in the town of Elmshorn, which is 52 miles north of Hamburg. Here I met up with other Euro Trials meeting participants. The next day we attended the annual Euro Trials meeting, held at the nearby Centre of Horticulture, Ellerhoop.

The Centre of Horticulture, Ellerhoop

Before the meeting, Andreas Wrede, our host, fellow Euro Trials participant and head of the tree nursery research programme at the Centre, gave a talk about the Centre’s work and the region’s horticultural industry. The Centre could be considered the equivalent in UK terms of a horticultural college combined with a horticultural research institute.

The Centre is financed by the state of Schleswig-Holstein’s Chamber of Agriculture, the organisation that promotes horticulture in the region. It has a budget of approximately €35m per year and is funded by a variety of means – 35 per cent from horticultural companies, 35 per cent from services provided, such as nursery trade trials, five per cent comes from renting and leasing real estate and

the remaining 25 per cent from the state. The Centre has a handsome new copper-clad building (Figure 7), workshop facilities and a total area of eight hectares; four of these for horticultural tests and trials, mostly in relation to tree nursery work. Also in the Centre is a training school for apprentices and horticultural education and offices for other horticultural institutions, including the association (known as Verbände) of horticulture, who “address the politicians and do lobbying”, plus several consulting institutions (known as Beratungsringe) (Wrede, 2015).



Figure 7 The Centre of Horticulture, Ellerhoop

The Centre provides four types of services to companies in Schleswig-Holstein and other federal states. These are:

- Tasks relating to apprenticeships and education in horticulture.
- Testing and trials of plants regarding various problems and questions the horticultural companies ask us to solve; we specialise in tree nursery and woody plants (other related institutions in Germany do tests and trials with ornamental plants or fruits and vegetables).
- We offer consulting, there are only six consultants left, specialising in economics, greenhouse technology, marketing, in optimising work input and in the production of woody plants.
- Finally, the chamber of agriculture covers the plant protection services, such as the surveillance and monitoring of pests and plant diseases, both in companies and public areas (Wrede, 2015).

Andreas explained that the experimental research station is preparing for the GEP (Good Experimental Practise) certification. This is a standard organised by the European and Mediterranean

Plant Protection Organization (EPPO). Its primary aim is to “ensure that high-quality trials are conducted, which ensures that results can be used by different registration authorities (mutual recognition, zonal evaluation)” (European and Mediterranean Plant Protection Organization, 2017).

The Pinneberg region

It is no coincidence that the Centre of Horticulture specialises in tree nursery trials, as it is located in the Pinneberg district, home to a large number of tree nurseries (known in German as Baumschulland). The history of tree growing in this area dates back over 250 years and it now has about “20 per cent of the total German market volume for tree nursery plants” (Schoppa, n.d.). This ranges from “the large tree to the small ornamental shrub, from forest trees to roses to rhododendron” and “every third forest tree in Germany comes from the Pinneberger Baumschulland” (Ibid). The tree nurseries are sited here due to the “loamy and sandy soil, which is typical of the region of Pinneberg” (Paulsen GbR, 2014).

Due to its history of tree growing, the Pinneberg region is defined as a historical cultural landscape and recognised as culturally significant in the German Federal Nature Conservation Act 2002. There is a historical route through this region, known as the Garden Route tour - subtitled from Baumschulbarone to Pflanzenjäger (from tree nursery barons to plant hunters) - which traces the history of tree nurseries in the area (Holstein Tourismus, n.d.). The area even has the Baumschulmuseum, Germany’s only tree nursery museum.

Euro Trials

Euro Trials began in 2002, at the horticultural trade show IPM, in Essen, Germany, when the trials committee secretary of the Royal Boskoop Horticultural Society (RBHS), in the Netherlands, spoke with Mr Schwarz, managing director of the Bund deutscher Baumschulen (BdB) (the Federation of German Tree Nurseries), to discuss cooperation in trialling plants. The UK’s Royal Horticultural Society (RHS) and France’s Institut National d’Horticulture (INH) also joined the above organisations to participate in international plant trials (Euro Trials, 2003).

There are now seven countries and organisations involved in Euro Trials:

- Austria: HBLFA (University of Agriculture), Vienna (contact: Thomas Roth).
- Germany: Bund deutscher Baumschulen, Landwirtschaftskammer Schleswig-Holstein, Ellerhoop (contact: Andreas Wrede and Thorsten Ufer).
- Finland: National Research Station LUKE, Piikkiö (contact: Sirkka Juhanoja and Eeva-Maria Tuhkanen).
- France: Agro Campus Ouest (University of Angers), Angers (Valéry Malecot).

- Ireland: Teagasc (Research, School and Consultancy Office for Agriculture), Dublin (contact: Paul Fitters and Donall Flanagan).
- Netherlands: KVBC (Royal Boskoop Horticultural Society), Boskoop (contact: Gert Fortgens and Ronald Houtman).
- United Kingdom: RHS (Royal Horticultural Society), Wisley (contact: Karen Robbirt and Sabatino Urzo).

All the Euro Trials organisations are non-commercial, which is “very important, since objectivity in trialling plants is absolutely necessary” (Euro Trials, 2003). The first Euro Trial was “*Hydrangea paniculata*, followed by *Weigela*, *Buddleja* and *Vinca*” (Ibid). There are currently Euro Trials of *Hibiscus syriacus* (about 65 cultivars, planted in eight countries) and *Physocarpus* (about 30 cultivars, planted in seven countries). In 2019, a trial of low-growing *Spiraea* (mainly *S. japonica* and *S. betulifolia* varieties) will begin, with the plants propagated in Finland (Houtman, 2017).

In terms of funding, “all countries are responsible for their own trials and costs involved” (Euro Trials, 2003). For each specific trial, the costs “for collecting, propagating and transport of plants to the various locations in Europe are to be paid for by the organisation that leads the project”, for example, “the Dutch KVBC have paid for the propagation, potting and transport of plants for the *Physocarpus* Euro Trial” (Ibid).

Annual Euro Trials meeting

At this year’s meeting, as well as myself and a colleague from the Royal Horticultural Society, participants were present from:

- Bund deutscher Baumschulen/Landwirtschaftskammer Schleswig-Holstein, Germany.
- Höhere Bundeslehr- und Forschungsanstalt für Gartenbau, Austria.
- Teagasc, Ireland.
- Koninklijke Vereniging voor Boskoope Culturen (KVBC), Netherlands.

No representatives attended from Belgium, Finland or France.

The meeting covered current trials and future plans. The quotes in this subsection are taken from the minutes of the meeting (KVBC, 2017), but for ease of reading quotes are not referenced individually here. There was firstly some discussion of the articles written by Ronald Houteman that summarise the entire trials, which are written in Dutch. This includes the one on *Vinca*. Some participants mentioned that an overall “report in English would be appreciated”. There is the question that this could be expensive to translate from the Dutch, which is an ongoing question.

The *Hibiscus* trial was then discussed (Figure 8), which will end in 2018. The participants went through the trial by country. Firstly the Netherlands, where the “*Hibiscus* grew well, all varieties flowered”. Euro Trials in different countries are set up in a variety of location, such as colleges, nurseries or public gardens. In the Netherlands, the *Hibiscus* trial is located at a specialised grower in Boskoop, a key nursery area. Also each trial country decides their own management regime. For example, in the Netherlands, “the grower cut back the plants in March”.



Figure 8 The annual Euro Trial meeting 2017, Centre of Horticulture, Ellerhoop

It was interesting to hear from members about the different climates across the Euro Trials countries. In Austria, Thomas Roth reported that there was “minus 20°C in January followed by a warm February. However, Thomas mentioned that “the winters in Austria are dry so the *Hibiscus* did not suffer too much, not even from the late frost in April”. In Austria “the *Hibiscus* are not pruned”, although “perhaps one out of three will be pruned next year”.

In the UK, the *Hibiscus* are grown on the trials field at RHS Garden Wisley. My colleague Karen Robbirt reported that “because of the frost in April (minus 8°C) there is a lot of frost damage to the new foliage. Flowering is later than expected”. In the UK, one from each “variety has been pruned with larger and more flowers as a result”.

Paul Fitters reported that in Ireland the *Hibiscus* are at Fitzgerald Nurseries, with maintenance done by the nursery. There has “been one assessment with five assessors”. Paul mentioned that it has been difficult to “find people for the assessment”. When they do come they judge these aspects of the shrubs:

- Plant shape, vigour of growth.
- Leaf quality, plant health.
- Flower quality, flower abundance.

In Ireland, the flowering period is later than in the Netherlands or Austria. The plants have not been pruned here, but perhaps “pruning will be done next year”. In a written submission, Finland reported that their winter has “been colder than minus 20°C for at least two weeks”. Of the three cultivars, “there is still one plant alive”.

Next, the *Physocarpus* trial was discussed. In Ireland it is planted at Kildalton College, Piltown. In the Netherlands, the shrubs are at Sortimentstuin Harry van de Laar, a park and trial ground near the Boskoop nurseries. I noted differences in the planting out of the shrubs between the different countries. At RHS Garden Wisley, I planted the shrubs 2m apart, as the previous *Physocarpus* trial became overgrown at 1m spacing. But the KVBC used 1m spacing. In Austria and Germany the *Physocarpus* are planted at 1.5m.

Future trial projects were discussed, including the *Spiraea* trial, which Finland is coordinating. This project shows an example of the logistics involved in Euro Trials. The eight participating countries will require three plants of each of the 50 cultivars in the trial, meaning 1200 plants will need to be distributed. Propagation has to be planned too: the “cuttings have to be made this year, then shipment is next year and planting is in spring 2018”.

There was discussion about other plants that might be trialled, including *Cotoneaster* and *Pyracantha*. I noted that the range of plants chosen so far have to be able to cope with the climate in all eight participating countries. This includes the harsh climate of Finland, with snow, extremely cold winters and short summers. This seems to me like a limiting factor on the Euro Trials, as only so many plants (usually woody) can grow in Finland’s harsh climate. Perhaps in the future some less hardy plants may be trialled, but not in all eight countries. There was also discussion about Poland participating in Euro Trials too, as “the KVBC, RHS and the arboretum of Wroclaw University in Poland perform a combined *Echinacea* trial”.

Tour of trials and experiments at the Centre of Horticulture

After the meeting we toured the grounds of the Centre of Horticulture with Andreas Wrede. We viewed the *Physocarpus* and *Hibiscus* Euro Trials (Figures 9 and 10). I noted that there was a lot of similarity with the way these trials are laid out at RHS Garden Wisley, although in the trials I look after there is a bark mulch applied to the bed to act as a weed suppressant and it is fenced to prevent rabbit damage.



Figure 9 *Physocarpus* Euro Trial at the Centre of Horticulture, Ellerhoop



Figure 10 *Hibiscus* Euro Trial at the Centre of Horticulture, Ellerhoop

Outside of the Euro Trial remit, it was interesting to see parallels here with other plant trials at RHS Garden Wisley in 2017. For example, at Wisley there is currently a new cultivars trial for annual displays, including *Calibrachoa*, *Begonia* and *Petunias*, and there is a similar trial at Ellerhoop (Figure 11).



Figure 11 New cultivars trial, Centre for Horticulture, Ellerhoop

Another trial at the Centre that really stood out was the *Wisteria* (Figure 12). Here the large *Wisteria* plants are grown along a wooden frame and wires and looked spectacular. Andreas told me that they use the same judging criteria here as the Euro Trials, which in turn is similar to the judging criteria used for the RHS Award of Garden Merit (AGM) in the UK. The criteria includes finding “good looking, healthy and frost tolerant varieties” (Wrede, 2017b). A variety that particular shone out from an outstanding collection was *Wisteria* ‘Blue Dream’ (Figure 13). The *Wisteria* are being trialled in ten locations across Germany, with different climatic conditions.

The Centre carries out approximately 80 experiments and trials each year. It wasn’t possible to view them all, but the following three stand out as interesting examples of the Centre’s exciting work.



Figure 12 Wisteria trial, Centre for Horticulture, Ellerhoop (left)

Figure 13 Wisteria 'Blue Dream' in the trial at the Centre for Horticulture, Ellerhoop (right)

Root pouch trial

The group saw the results of an experiment assessing three different types of tree containers, all planted with *Tilia cordata* 'Green Spire'. The experiment was carried out here on behalf of garden supplies wholesaler Drehandel and Root Pouch, makers of a tree bag. The Root Pouch (Figure 14) was compared to a standard plastic tree container and an Air Pot. The experiment asked the question: "Are there any differences between planting a *Tilia cordata* 'Greenspire' in a Root Pouch tree bag (39L), in a standard container (40L), or in an Air Pot (37L)?" (Wrede, 2016). After the two year experiment the results were:

- No significant difference in the development of underground plant parts in 2015/16.
- The difference in root patterns were clear. In the standard container, a relatively large number of circling roots were found along the pot walls. This was not observed in the Root Pouch and Air Pot containers.
- Compared to the standard container, the temperature profile in the substrate in the root pouch was much more balanced (Ibid).

More information on the experiment can be found online:

<https://rootpouch.com/blog/root-pouch-no-problem-with-circling-roots>



Figure 14 Root Pouch tree container trial, Centre for Horticulture, Ellerhoop

Rose replant diseases

Rose growing is another area of experimentation here, reflecting the large number of roses grown in the region. One area of concern is rose replant disease, with Andreas noting that “the causes are not understood” for this disease, but the effects are well known: “Poor vegetative development, stunted growth and reduced yield are visible plant reactions” (Wrede, 2017a). He explained that with annuals, crop rotation and moving the cultivation sites are steps to overcome replant disease, but these “possibilities are usually not available for woody species being produced in nursery and fruit production centres” (Ibid). Andreas added that the “replant diseased soils cannot be used for up to 20-30 years, unless soil disinfection is applied, but the grower in Germany don't have any legal chemical substance to disinfect the soil for the last 10 years!” (Ibid). Therefore the Centre is experimenting with growing different rose rootstocks, to see if any are more tolerant of the disease (Figure 15).



Figure 15 Rose replant disease rootstock trial, Centre of Horticulture, Ellerhoop

Christmas trees

Another area of research at the Centre is the production of Christmas tree seedlings. The Pinneberg region is a significant area for the production of Christmas trees. The species include *Picea pungens*, *Abies nordmanniana* and other *Abies* species. These are grown on sandbeds and sold on to growers throughout Europe who grow the trees on for sale to consumers. At the Centre, different ways of growing the seedlings are tried, such as using rolls of matting which are embedded with the seedlings, which are rolled out and covered in sand (Figure 16).



Figure 16 Christmas tree seedlings on matting and sand, Centre of Horticulture, Ellerhoop

Other trials and facilities

Other interesting aspects of the Centre of Horticulture included the recycling of all excess irrigation run off and rain water on the site. From the plant standing out areas gullies collect the water and this is piped back to a sandbed filtration system (Figure 17) and then it goes back into the lake and gets reused on site.



Figure 17 Sandbed filtration system, Centre of Horticulture, Ellerhoop

Also of interest was the Centre's horticultural training courses. I noticed a peculiar area on the site with graves in, covered by a gazebo (Figure 18). Andreas told me that they teach students here how to maintain graveyards and this area is used for their examinations. Another aspect of the Centre's work is acting as one of a number of ADR rose certification centres in Germany. ADR is a working group of the German Federation of Tree Nurseries (BdB) and other organisations, including independent audit gardens. The ADR test system is "an objective criterion for the breeders and consumers to assess and select attractive roses. ADR thus promotes breeding progress and the use of high-quality varieties" (ADR, n.d.). The Centre is a location for ADR certification because this area has been a significant producer of roses since the early 20th century. Rose breeders in the area recognized the need to test and evaluate roses as long ago as the 1950s and "Wilhelm Kordes founded the ADR-test 45 years ago" (Landesverband Schleswig-Holstein, n.d.). The "most important characteristics of the rose are subject to strict quality control in order to obtain the 'ADR Rose' rating" (Ibid). The subject of rose production in the area will be featured again in the visit the group made to Kordes Rosen nursery.



Figure 18 Grave maintenance exam area, Centre for Horticulture, Ellerhoop

Ellerhoop-Thiesen Arboretum

Next, the group visited the Ellerhoop-Thiesen Arboretum, which is a short walk away. The arboretum is 17 hectares, with 7.5 hectares of this open to the public. It was started in 1943, when Timm & Co created a nursery here. Then its last owner, Erich Frahm, established a 3.5 hectare arboretum in conjunction with the dendrologist Dr Gerd Krüssman and it was acquired by the state in 1980, when a group of experts that included Hamburg Botanic Garden helped plan its future. In 1989 the “non-profit Arboretum Förderkreis Baumbark Ellerhoop-Thiensen eV was established to support the arboretum, and in 1996 responsibility was handed to this organisation” (Wikipedia, 2013).

Plant areas of interest here include the genera *Prunus*, *Malus* and *Hydrangea* and also the breeding and selection of tree peonies. The arboretum “has amassed the largest tree peony collection in Germany, with a total of 245 taxa” (Ibid). In the arboretum there are “over 4,000 different tree species and plant varieties” (Local Community Ellerhoop, 2016). The maintenance and development of the arboretum is mainly financed by entrance fees and donations and the management and much of the arboretum’s administration is operated on a voluntary basis (Ibid). The arboretum also teaches biology and horticulture.



Figure 19 Entrance building, Ellerhoop-Thiesen Arboretum

The Euro Trials group had a walking tour of the arboretum with a volunteer guide, which began outside the garden's café, an impressive building converted from a traditional Schleswig-Holstein barn (Figure 19). Several areas stood out for me. Firstly I saw a gardener hand pulling cow parsley from the wild flower meadows, to reduce the vigour of this species in the mix. Like a lot of gardens, wild flower meadows are a significant feature in this arboretum (Figure 20).



Figure 20 Pulling out cow parsley, Wild flower meadows, Ellerhoop-Thiesen Arboretum

Another area that stood out was the Swamp cypresses in the lake (Figure 21). This unusual and photogenic feature, a mix of *Taxodium ascendens* and *T. disticum*, must look especially good when the leaves change colour in the autumn. What really amazed me was seeing some Dawn Redwood, *Metasequoia glyptostroboides*, in the water here too. However, the most amazing area of all was the spectacular Wisteria Walk, which was one of the highlights of the whole trip, especially as the *Wisteria* were underplanted with white alliums, giving this feature a real ‘wow’ factor (Figure 22).



Figure 21 Swamp cypresses, Ellerhoop-Thiesen Arboretum



Figure 22 The ‘wow’ factor – the Wisteria walk, Ellerhoop-Thiesen Arboretum



Figure 23 Model of the General Sherman tree, Ellerhoop-Thiesen Arboretum

An unusual (probably unique) feature in the arboretum was the full scale model of the lower trunk of the redwood General Sherman, a *Sequoiadendron giganteum* that is the world's largest tree (by volume). Inside of this model the garden has planted a real growing *Sequoiadendron*, but it needs mirrors located inside the model to ensure it gets enough sunlight on its foliage. (Figure 23).

Lorenz von Ehren Nursery

The next day the group visited three very different nurseries, starting with Lorenz von Ehren Nursery. This took us from the Pinneberg region through the Elbe tunnel to the southern edge of the city state of Hamburg. Lorenz von Ehrens specialises in growing large trees, which are ideally suited to growing and transplanting in the area's sandy soils. Outside of the nursery's offices the trees are interesting large specimens, both of conifers and deciduous species, but these don't stay here long, as visiting customers buy them and they are dug up and shipped out. The office building itself is unusual, as it's made by the German HUF HAUS company, manufacturers of high end prefabricated buildings, some of them in England have appeared on Channel 4's Grand Designs programme (Figure 24).



Figure 24 HUF HAUS designed offices, Lorenz von Ehren Nursery

We were invited inside the offices for coffee and a talk on the history of the company from European sales manager Peter Flügge (Figure 25). We heard that the company was founded in Hamburg in 1865 and moved out to this site in 1993, as it has more growing space. This site is on the edge of Hamburg, near the Harburg Hills and the Lower Saxony border. In total the nursery has 550 hectares of trees, topiary and shrubs, including some on another site at Bad Zwischenahn. This separate site has a different, acidic soil type, and, unsurprisingly, this is where the rhododendrons and many of the evergreens are grown.

At the Hamburg site there are many different trees types and sizes, particularly avenue and specimen trees. Peter mentioned that in recent years umbrella forms have become of interest as have cloud pruned pines, and Bonsai have also become popular in the last 30 years. He said there is also a call nowadays for instant hedging, which is grown here and *Taxus baccata* has become an important alternative to box for topiary. The nursery's customer base includes Scandinavia, Western Europe and increasingly Russia and former eastern bloc countries such as Ukraine. Indeed, I found a copy of their catalogue in Russian in the nursery's minibus. To give some idea of their high end customers, there is even a helicopter landing pad outside the offices. Examples of places that the nursery has recently supplied with trees include the Palace of Versailles and Disneyworld, Paris, Potters Field Park, London, numerous private gardens throughout Europe, three large trees delivered to this year's Chelsea flower show gardens and a number of trees shipped to Alconbury new town in Cambridgeshire. To give some idea of the scale of operations, for the Alconbury new

town 27 London Planes (*Platanus acerifolia*), each with a trunk circumference of 70-80cm and 12.5m height, were transported on flat bed lorries. They were too big to go through the channel tunnel and so had to go across the sea by ferry.



Figure 25 Peter Flügge's talk on the history of Lorenz von Ehren Nursery

We began our tour with a walk around the yard and tree despatch area near the offices. There was a significant amount of large machinery parked here, with many large trailers that bring the trees in from the fields, which Peter told us were purchased secondhand from the German army. The trees come in from the fields in these large trailers and are loaded onto articulated trucks in the huge despatch shed (Figure 26). The company has a strong emphasis on sustainability, the machinery workshop having the largest green roof I've seen, which looked great with the chives in flower (Figure 27). There were many large tractors and grabs for lifting the huge rootballed trees (Figure 29). Peter told us that the company actually invented the tree spade to dig up and transplant its trees.



Figure 26 The vast tree despatch shed, Lorenz von Ehren Nursery



Figure 27 Machinery shed with green roof, Lorenz von Ehrens Nursery

After looking around the yard area, we toured the site in a minibus with Peter driving and pointing out features (Figure 28). He told us that the nursery's aim is to "grow very big and to offer large varieties". He said the firm occasionally buys up trees for resale, such as some old orchard trees - to create your own instant orchard - and some *Heptacodiums* that were bought from a nursery that was closing down. He said the *Heptacodiums* were not that well known but were now becoming of interest to buyers. We passed an area called the Climatic Grove, where the nursery is trialling stock

for a changing climate. Planted here are “61 trees that are classified as resistant to climate change and meet the recommendations of the nursery, the GALK garden directors’ conference, and the Stadtgrün 21 project” (Lorenz von Ehren, 2017). The 61 trees include “*Taxodium distichum* (Bald cypress), *Nyssa sylvatica* (Black tupelo), *Magnolia kobus* (Kobushi magnolia), *Liriodendron tulipifera* (Tulip tree), *Koelreuteria paniculata* (Golden rain tree) and even *Fraxinus angustifolia* 'Raywood' (Claret ash)” (Ibid).



Figure 28 View from the minibus, Lorenz von Ehren Nursery



Figure 29 Tree moving machinery, Lorenz von Ehren Nursery

Other trees seen on the minibus tour include a range of cloud pruned Pines, which were being shaped as we drove past. We saw a wide range of pruned and shaped trees, including ones shaped into blocks, espalier, table tops and even gazebos made up of trees (Figure 30). Peter told us that these shaped trees are a popular product now and represent around 15 to 20 per cent of the total tree stock. Topiary balls are another popular area and represent another 10 per cent of the stock grown here.



Figure 30 Gazebo made of trees, Lorenz von Ehrens Nursery

Kordes Rosen

From Lorenz von Ehrens Nursery we travelled back through the Elbe Tunnel to Kordes Rosen, near Elmshorn in Schleswig-Holstein. This famous rose breeder and grower has won a significant number of medals (Figure 30). Before a tour of the glasshouses, Thomas Proll, breeding and research manager, gave a presentation. Kordes Rosen was founded by Wilhelm Kordes and its first roses were released in 1918. The company has continued in the family line - Wilhelm Kordes II became a world-famous rose hybridizer, Tim Kordes was the fourth generation to run the company and they are now run by the fifth generation. By the start of the Second World War, they had produced one million roses. Their most famous rose is probably *Rosa 'Iceberg'*, released in 1958. By the 1960s, they were producing four million roses each year, but today it produces half this number. The reasons that Thomas gave for this decline in numbers is cheaper roses coming into Germany from Bulgaria, Moldova and even China, whose roses can be found in the cheap supermarkets such as Lidl and Aldi. Thomas explained that the market is simply not big enough for expensive roses.



Figure 30 Some of the medal show cases, Kordes Rosen

One of the issues mentioned by Thomas was the lack of chemicals in Germany for soil sterilisation, which has been the situation for 20 years (this is why studying rose replant disease at the Centre of Horticulture, Ellerhoop is so important and relevant to local breeders). Thomas explained that they need to rent fields from farmers, so they can use fresh fields for planting out, which require five to



Figure 31 Thomas Proll explaining the rose breeding programme, Kordes Rosen

seven years between rose crops. Even then, they use *Tagetes* as a biofumigation crop on the field a year before planting out. He went on to explain that the season for selling roses has moved from the autumn to spring, as many roses are now containerised.

The rose breeding process was explained in detail by Thomas (Figure 31). The process is done in late April. The rose is forced open and the petals removed. The rose is pollinated with another variety. The other parts are then taken away from the flower (known as emasculation). They are pollinated using a finger (Figure 32). The numbers involved are staggering - between 100,000 and 200,000



Figure 32 Hand Pollination of roses, Kordes Rosen

roses are pollinated every year. Each pollinated rose flower head is marked with a number (Figure 33). The highest percentage of roses pollinated are for glasshouse use (60 per cent), followed by use in the garden (30 per cent) and then for pots (10 per cent).

After fertilisation the hips are split open and the seeds removed. The sand beds in the glasshouse are steam sterilised and the seeds are sown here in November or December at a temperature of 2-4°C. By January or February the seedlings are growing in the seedbed. Thomas said that the germination rate is usually good. In March or April the plants are flowering in the seedbed and it is then that many are removed in a “negative selection” process, which means the good ones have more growing space (Figure 34). Thomas said that they are selecting on such aspects as flower colour and growth habit. Around 10 per cent of the plants from the seedbed are kept each year. These are propagated by budding. Three plants of these are planted out on their trials fields, with around 10,000 to 15,000 plants to a field.

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Figure 33 Roses pollinated and numbered, Kordes Rosen

New plants are selected according to criteria that includes: rust resistance, hardiness, heat tolerance, flowering period, stable flower form and colour, good colour and scent. Growth habit includes height and the plant's overall habit. Thomas said that there is a trend now for smaller gardens, which influences which plants are chosen. At Kordes Rosen it takes around eight to ten years from the pollination process to the introduction of a new rose to market. Thomas said that "we start with around 200,000 seedlings for garden roses and introduce up to 10 new releases every year". He added that on average "it needs something like 20,000 seedlings for one introduction". Most of the companies new roses enter the ADR certification process, with around ten to twelve going forward each year, which Thomas said is "mostly enough to put all potential candidates into the trial".



Figure 34 New roses on the sandbeds, Kordes Rosen



Figure 35 Roses in the glasshouse, Kordes Rosen

Kordes Nursery – Jungpflanzen



Figure 36 Christian Kordes showing the Euro Trials group some of the plants at Kordes Jungpflanzen

From Kordes Rosen nursery we travelled east across Schleswig-Holstein to Kordes Nursery - Jungpflanzen, the final nursery on our tour. This nursery is a different branch of the Kordes family from the rose nursery. Kordes Jungpflanzen specialises in young plants (Jungpflanzen is German for young plants). Christian Kordes, the company's CEO, gave a talk and tour (Figure 36). The company was established in 1950 and moved to their current site in 1970. Christian said their main focus is producing new shrub varieties from softwood cuttings, which is 90 per cent of their work (Figure 37). They supply liners to nurseries all over Europe, including cultivars of *Physocarpus*, *Hibiscus* and *Syringa*. The company also has an interest in cultivating "new and reliable" cultivars of Sea Buckthorn, including the "exceptional" *Hippophae* 'Orange Energy'® ('Habego') (Albrecht, 2007, p. 3).

An example of a plant production schedule here is for *Hibiscus*. The rooted cuttings will spend one year in the white plastic module trays. Christian commented on how fantastic these trays are, being virtually indestructible and used here for 30 years and still going strong (Figure 38). After a year in the trays, the *Hibiscus* are potted up and sold that September to the nursery trade, who will then pot these on into three or five litres pots and sell them to garden centres.

Much of the work here is semi-automated, with the use of potting machines and conveyer belts, but the nursery still relies on a labour force for potting up the cuttings (Figure 39). After being potted up, the new plants are transported in road trains of trailers to the vast standing out area (Figure 40), where they are fed and watered using an automated system.



Figure 37 Shrub cuttings in module trays, Kordes Jungpflanzen



Figure 38 Trays of Hibiscus cuttings, Kordes Jungpflanzen



Figure 39 Potting up rooted cuttings, Kordes Jungpflanzen



Figure 40 Outdoor area, Kordes Jungpflanzen

Planten un Blomen, Hamburg

On the last day of the bursary trip I visited the Planten un Blomen park in Hamburg. This is an urban park of 116 acres in the inner city. Planten un Blomen in English means Plants and Flowers. I went there mainly to see the display glasshouses, which are managed by Hamburg Botanic Garden (Figure 41). This was once the site of the botanic garden, but this moved to the suburban Klein Flottbeck area, as there was no room to expand here.

These glasshouses are 2800m² with a maximum height of 13m. The building is interesting, as the glass structure “is suspended from the exterior hollow box profiles and the interior spaces are therefore completely free of load-bearing elements” (Hamburg Botanic Garden, n.d.). Also built at this time were the surrounding Mediterranean terraces, and both these and the glasshouse are now protected historical monuments (Ibid). The glasshouse is divided into five themed houses - Tropical, Succulent, Fern, Subtropical and Cycads. While all sections of the glasshouse were of interest, two stood out. Firstly the collection of trees ferns, which was aesthetically pleasing as well as horticulturally interesting (Figure 42). Likewise, the cacti collection stood out as visually striking, especially as the long linear bed is set against an impressive geometric wall (Figure 43). The glasshouses are marked as number 10 on the plan of the park (Figure 44).



Figure 41 Display glasshouse, Pflanzen un Blumen park, Hamburg



Figure 42 Tree ferns in the display glasshouse, Pflanzen un Blumen park, Hamburg



Figure 43 Cacti in the display glasshouse, Planten un Blomen park, Hamburg

As well as visiting the display glasshouses, the Plant un Blomen park is itself of horticultural and historical interest. The park was constructed in the 1930s, in the National Socialist era, as a scheme to get unemployed men back into work, with around 1800 men working on the park at some points (NDR, 2013). It opened in 1935 for the Lower German Garden show, which built on a tradition of two earlier garden shows in the city, in 1869 and 1897 (Hamburg Journal, 2013). The park, located next to the Dammtor train station, was built on the site of the former Hamburg Zoological Gardens and an old cemetery, the graves here were moved to the Ohlsdorf Cemetery. It was based on designs by the landscape architect Karl Plomin.

Parts of the park were damaged by bombing during the Second World War, and, as part of the reconstruction work, the first IGA show (International Garden Show) was held in the park in 1953, with Karl Plomin playing a role in the redesign of the park. A second IGA show took place in the park in 1963, and this time Karl Plomin managed the show. This second IGA show was very successful, with 5.4 million visitors (Ibid). More work was done in the park in 1973 for the third IGA. The park includes many beautiful features besides the display glasshouses, including a rose garden, herb garden, sumptuous plantings of herbaceous perennials and one of the largest Japanese Gardens in Europe, which was created in 1988 by landscape designer Yoshikuni Araki (Figure 45).



Figure 44 Planten un Blumen park, Hamburg



Figure 45 Japanese Garden, Planten un Blomen park, Hamburg

Summary

Attending the Euro Trials meeting and associated tours far exceeded my expectations in developing my horticultural knowledge. I learnt about the wider German horticultural industry, especially the tree growing industry in the Pinneberg and Hamburg regions. I saw other Euro Trials being managed, which has fed into my management and maintenance of the *Physocarpus* Euro Trial at RHS Garden Wisley. I networked with Euro Trials colleagues, which has proved invaluable for building my horticultural contacts in Europe. I learnt about various horticultural experiments, including rose replant disease, germination of Christmas tree seedlings on matting and using the best type of tree containers. In addition, I learnt about rose breeding and production and creating new garden features with a 'wow' factor, such as the *Wisteria* walk at Ellerhoop-Thiesen Arboretum.

Future plans

Future plans include a potential return visit to the Pinneberg region to drive the Garden Route, from Baumschulbarone to Pflanzenjäger (from tree nursery barons to plant hunters), tracing the history of tree nurseries in the area. Plus, there is also the possibility of participating in future Euro Trials meetings.

Costs

| | |
|--|------|
| Bursary awarded | £400 |
| Flights, London Gatwick to Hamburg and return | £120 |
| Hotel in Elmshorn, Germany for 3 nights | £235 |
| Airport parking at Gatwick | £51 |
| Trains and Metro in Germany | £30 |
| Personal contribution (paid for trains and some meals) | £100 |

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