



Supporters of the National Fruit Collections Trust **SPRING 2020**

Collection News

Space Sapling comes to Brogdale

Back in 2015 as part of his 'Principia' Mission British astronaut Tim Peake took seeds from the famous tree at Woolsthorpe Manor under which Isaac Newton is said to have sat. Newton's tree is thought to have prompted him to question why the apple fell and led to his world changing views on gravity. The tree, thought to be the original is still thriving despite having blown over and regrown. The seeds spent 6 months on the International Space Station as part of the 'Pips in Space' Project, returning to earth in 2016. They were then germinated and 8 apple saplings were produced. Together with the UK Space Agency and the Royal Botanic Gardens, Kew the National Trust launched a competition at the 4th Gravity Fields Festival to find partners to grow the trees.

Our secretary, Tim Biddlecombe, approached Brogdale Collections and together they drew up a bid and submitted it. The proposal was to create a small avenue of apple trees with the space sapling at the head. The trees along the avenue would be planted to illustrate the difference a rootstock makes to growth and cropping, (the sapling is grown from seed it does not have a rootstock); and also to show how the fruit from the seedling differs from its parent.

Out of 50 bids our proposal was one of seven that was accepted so in January this year we were invited to Woolsthorpe Manor to join the other successful winners of the competition and to be presented with our sapling from Tim Peake himself.

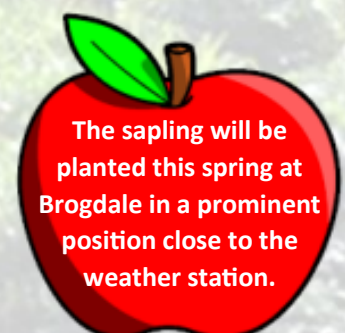
During the ceremony Tim Peake said: *"These trees are truly unique. They come from the iconic apple tree that inspired Sir Isaac Newton to ponder the forces of gravitation and continues to inspire to this day. My mission to space was named Principia in homage to Newton's defining work that included his world-changing ideas about gravity. I wanted my Principia mission to inspire others, particularly young people, with the adventure of space and the excitement of science. Now, thanks to the careful nurturing at Kew, the apple pips that flew with me into space have grown into fine young trees which I hope will continue to inspire potential Isaac Newtons".*



(left) Tim Peake
presenting the Space
Sapling to Tim
Biddlecombe



(right) Sara Smile &
Debi Adams from
Brogdale Collections



New PhD project begins in the Apples in a Warmer World facility at Brogdale

We are delighted to welcome Adam Peter to Brogdale where he will be studying more aspects of how apples are being affected by changes in the climate.

Adam has a background in applied agricultural science with an MSc in Future Food Sustainability (Cranfield University). Since completing his MSc in 2017 he has worked as a research assistant in the horticultural sector at NIAB EMR and Berry Gardens Growers. Adam has worked on numerous Innovate UK funded projects related to novel soft fruit IPM strategies and fruit tree management systems.

The PhD project will further develop the research outputs of the NFCT Climate Change Trial based at Brogdale. The project will explore multiple topics, including:

- The use of mathematical modelling to determine apple tree phenology
- How accelerated harvest dates impact fruit quality
- How different climate regimes may influence fruit quality of stored fruit
- Climate effects on soils, rooting and soil biodiversity indicators within apple production
- Potential further development of the facilities to include cider varieties and rootstock studies

Adam's PhD studies at the University of Reading are being supervised by Professors Richard Ellis, Paul Hadley and Dr Matthew Ordidge in the School of Agriculture, Policy and Development there together with Tim Biddlecombe of FAST at Brogdale. This studentship is being funded by a consortium of the Perry Foundation, the Worshipful Company of Fruiterers, and the University of Reading. The Apples in a Warmer World research facility at Brogdale and annual research costs are provided by the National Fruit Collections Trust. Adam will start his studies in April 2020.



New Trustee appointed

The Trust are delighted to announce that Dr Graham Collier has accepted the invitation to join the Trustees.

After graduating with a PhD in botany from the University of Birmingham, Graham Collier pursued a short research career investigating calcium related disorders in vegetable crops in both the UK and USA. He went on to hold senior management positions with suppliers of fruit, salad and vegetables to UK retailers. In technical, procurement and general management roles he worked with fruit growers nationally and internationally to create sources of product that fulfilled the demands of the UK market.

Graham is a director and vice chair of Warwickshire Rural Hub, a business support organization led by farmers and rural businesses across Warwickshire, Solihull and beyond. He has been a long time member and latterly chairman of the Awards Council of the Worshipful Company of Fruiterers.



After retirement Graham conceived and developed a Community Orchard in his local south Warwickshire village of Tysoe, where he lives with his wife Rosemary.

Apples in a Warmer World Project finds that only small increases in temperature have a major impact on apple production.

Tobias Lane will be completing the records for his PhD over the next few weeks as the pruning is finished and then will be writing up his thesis. His studies have revealed some very interesting and sobering facts on the impact of quite small uplifts in temperature on the timing of flowering and harvest and on the growth of the trees.

As you know the tunnels are not heated so we rely on passive heating, i.e. raising the temperature just by keeping the tunnel vents closed or only partially open. We have been aiming for a 1-2°C uplift in one tunnel and a 3-4°C uplift in the other. In practice the increase actually achieved when averaged over the whole year has only been approximately half of that we hoped for. However even this relatively small increase has led to an advancement in flowering and harvest by between 2 and 3 weeks. This will have a significant impact on fruit production and quality if these temperatures are experienced over the next decade or two. The greatest risks are that earlier flowering could expose orchards to a much greater chance of a frost with devastating effects on fruit set, and that fruit maturing in August rather than in September will have poorer eating and keeping qualities and make it more difficult for home gardeners and commercial growers alike to store their fruit.

Storm damage

Unfortunately the recent storms have inflicted significant damage to the tunnels and the irrigation tank. The timing couldn't have been worse as we had just completed some major repairs before the first storm hit. These repairs were to the plastic cover which was beginning to wear out in places, and all of the gutters had to be replaced to cure persistent leaks. The storms then tore more of the polythene including some of the new sheets installed a few days before.

We hope that the necessary repairs will be completed before the season gets underway and that the trial will not be compromised by these unfortunate events.

New cherry collection planted

Over the last 3 years a replanting programme to re-propagate the cherry and plum collections has been underway. This winter the cherry collection was planted on land previously occupied by the apple collection. Work is now underway to remove more of the old apple collection to free up space so the land can be prepared over the summer in good time to plant the plum collection next winter. During the next few years all the newly planted trees will be checked to make sure they have been labelled correctly. This will be done by examining the fruits and will be backed up with DNA testing. Only when we are 100% sure that all the new trees are exactly right will the old collection be grubbed.



Part of the new Cherry Collection planted this winter

Supporters' event

Having held a special event for our supporters at the Cherry day last year we will be planning an activity during the Apple Festival in October this year and will circulate more details in good time.

The National Fruit Collections Trust can only continue its work due to the generosity of its supporters and receives no income from the government or other public bodies. The two PhD projects have been largely funded by grants from other charitable organisations but covering the not inconsiderable expenses to maintain the Climate Change facilities at Brogdale is done entirely by the Trust.

If you would consider making a donation or leaving a legacy to the Trust to enable it to continue this vital work we would be most grateful.

Brogdale Collection News

Festival Dates

- Hanami - 18 & 19th April - please check this event is still happening with Collections office
- Open Farm Sunday - 7th June - ditto
- Strawberry Fair - 21st June - ditto
- Cherry Festival – 19th July
- Plum Day – 9th August
- Artisan Cider Festival – 29th & 30th August
- Pear Day – 13th September
- National Apple Festival – 17th & 18th October
- Christmas Craft Fair - 6th December