The journal of the Chartered Institute of Horticulture | Volume 30 No. 1 | Spring 2021

The Horticulturist





Novel soilless substrates

PLUS Disease management | A green evolution | Good to grow | A memorial tree | Continuing Professional Development

CONTENTS

Volume 30 No. 1 | Spring 2021

IN THIS ISSUE

4 Novel soilless substrates

Soilless substrates are the way forward for growing many consumable horticultural crops, suggests Dr Brian Jackson.

7 Dealing with a modern pathogen

Simon Jones reports on the response at Arduaine Garden, an historic heritage site, to combatting *Phytophthora ramorum*.

10 A green evolution

Fran Suckling looks at some of the pivotal events and developments in the history of community gardening.

14 Good to Grow

Horticultural students Gill McNeill, Sandy Carney and Paul Williamson report on their efforts during lockdown.

18 A personal conifer

Adrian Bloom shines a spotlight on a particular tree, *Picea omorika* 'Pendula Bruns' in his Norfolk garden.

22 Institute news

- 24 Continuing Professional Development
- Dr David Elphinstone
- 27 Book reviews
- 28 Branch reports 30 Horticultural research

Fruit crops

Cover A rooted geranium cutting is rendered using a colour panel to differentiate substrate materials by their density. (Photo: Brian Jackson)

The journal of the Chartered Institute of Horticulture promotes and disseminates best practice and achievement in the science, technology, education, business, and art of horticulture to all professional horticulturists. ISSN 0964 8992

Editor Barbara Segall CHort FCIHort Proofreader Sue Minter CHort FCIHort VMM Designer Made In Earnest Printer Blackmore Publisher Hall-McCartney (on behalf of the CIH)

Chartered Institute of Horticulture

BGA House, Nottingham Road, Louth, Lincolnshire LN11 0WB 03330 050181 cih@horticulture.org.uk www.horticulture.org.uk

Facebook ClHort Twitter @ClHort Instagram @ClHort Registered charity No. 1159140

FROM THE PRESIDENT

We have made great strides at the Institute during this potentially disabling COVID-19 period and kept the majority of programmes on track and added a few of interest. Our development officer, Helen Session, joined us from the National Trust. She will be rolling out a programme of engagement after 21 June. There will be no abandoning of the video conference platform but I am sure that members and branches will enjoy the personal interface at meetings and gatherings.

Dr David Elphinstone and the Education Committee have had their routes to Chartership curtailed during the pandemic but we are now close to releasing the details of the programme to fulfil the desire of members to demonstrate their professional competence to work colleagues and industry peers. This will be a horticulture award with a difference as it will be delivered and assessed by leading industry professionals and validated by a Chartered Institute. We hope that the first cohort will begin their journey in autumn 2021.

We have also instigated bi-annual meetings of the Past Presidents and this group will oversee the CIH 50 Award and continue to provide advice for Presidents and Council in the future. An annual London dinner will mark the work of the Past Presidents.

Also this year, we initiated a quarterly meeting process with Chairs of Branches. This proved to be a very important step for dissemination of information and the all-important feedback to HQ. My thanks to all Chairs for their commitment to this new forum.

The 2021 AGM will still take place on 24 April. Hopefully this will be our final virtual AGM for this pandemic period. Matthew Appleby, Editor of *Horticulture Week*, will present the James Bruce Lecture. Matthew's knowledge of the broad church of horticulture is unparalled and members will be in for an incisive paper on horticulture today!

We will also welcome new Chartered Members, new Trustees and a new President. I wish our President-Elect, Susan Nicholas, the very best of good fortune in her role ahead.

Conference is scheduled to take place at the Royal Botanic Garden, Edinburgh on 24-25 September. Given the pronouncement by the Prime Minister it is highly likely that Conference will take place and that the programme will be released before 21 June.

I stepped into the world of horticulture in August 1982 and never imagined being President of this great Institute. Nor did I imagine being President during a pandemic. We have navigated

this period by having an industrious management board, a truly member-focused Secretariat and a supportive Council. I should also mention the inventiveness of *The Horticulurist* Editor in creating inspired copy during this period.

It has been my privilege to be President during these past two and a half years and I know the CIH is in a great position to build on the successes of this period. I hope I can catch up with many members at Conference. Thank you all for your support.

Gerald Bonner CHort FCIHort, President president@horticulture.org.uk

Write for The Horticulturist

Much of the content of *The Horticulturist* arises from voluntary contributions from members in the shape of ideas, articles and photographs.

If you are interested in writing an article for the journal or have a newsworthy item please contact the Editor, Barbara Segall, at barbara@bsegall.plus.com.

Issue copy dates Summer 2021 issue: 24 May Autumn 2021 issue: 27 September Spring 2022 issue: 24 January

Paper stock

You will notice that *The Horticulturist* is printed on 100% recycled paper.

This is the second phase of our efforts to protect our environment and complements the recent introduction of the compostable sleeve.

We hope you will enjoy the look and feel of the journal.

Advertising enquiries

Hall-McCartney Limited, Heritage House, PO Box 21, Baldock, Hertfordshire SG7 5SH 01462 896688 cih@hall-mccartney.co.uk

Subscriptions

£90 (UK & Ireland) £118 / €146 / US\$162 (overseas addresses)

All prices include cost of postage by air, except in UK. There is a 5% reduction for agency subscriptions. Orders and inquiries should be made to the Secretariat at the Institute.

Copyright

The Chartered Institute of Horticulture (CIH) all rights reserved. No part of this publication may be reproduced in any form or by any means or stored in a retrieval system without the written permission of the CIH. Views expressed in *The Horticulturist* are not necessarily those of the Editor or of the CIH. The CIH does not endorse any products or services advertised within the pages of *The Horticulturist*.





Aging and handling studies of bark substrates provide better understanding on the use and management of these materials.

Novel soilless substrates

RESEARCH Soilless substrates are the way forward for growing many consumable horticultural crops, especially in areas of the world where arable land, water, labour, and poverty are critical challenges, suggests **Dr Brian Jackson**.

As precision agriculture and horticulture continue to evolve and as more and more food and other crops are being grown in soilless growing systems, the need for new, uniquely engineered, and highly specialised soilless substrates (growing media) will continue to increase. Manufacturers and researchers have steadily improved the composition, functionality, reliability, and consistency of the various substrates that growers around the globe rely so heavily upon to produce their crops.

Over the decades substrates have gone from being 'stuff in a pot' to being highly functioning and complex materials. Terms often used today by company sales reps, marketing promotions, researchers, and even growers to describe the manufacturing of soilless substrates include 'crafting,' designing,' formulating,' constructing,' 'engineering' among others. The science behind substrates is evolving and improving just like the genetics of the plants grown in them and the fertiliser, herbicides, growth regulators, etc applied to those plants. Many believe that substrates are to horticulture what Atlas is to the world he holds in the famous depiction from Greek Mythology... the foundation upon which all else is dependent.

Research on horticultural substrates has a long history around the world of providing critical answers to problems associated with growing plants in soilless culture. Many researchers have contributed to the improvement of growing practices to make horticulture production more efficient, enhanced, economical, and sustainable.

For over five decades scientists studying substrates have evolved and adapted their work around changing technologies, manufacturer and grower needs, environmental concerns, and governmental policies and regulations. Research first focused on finding suitable replacements for mineral soils in containers. Today, studies include a broader remit of creating and managing the proper root environment for more precise and controlled plant production. Many scientific, technological, and engineering advances in soilless substrates have been reported in the past decade.

To emphasise the importance of soilless growing media, the volume of substrates

consumed globally in 2020 was estimated to be 70-75 million cubic meters (m³). These estimates are difficult to accurately project due to the lack of requirements or standardisation for reporting volumes and total sales of substrate materials by the manufacturers. Recent projections for global substrate demand have shed light on the challenges the industry faces in the years and decades ahead to meet the growing global demand for these materials. A recent study led by Chris Blok from Wageningen University (The Netherlands), projects the demand for substrates in 2050 to reach ~280 million m³, a 240-250% increase in just the next 30 years.

Tomographic technologies

The first area of technological advancements to highlight is the use of image analysis to better and further understand the soilless environment and the plant roots growing in them. The opaqueness of containers and substrates has caused researchers to exercise some creativity to overcome their lack of visibility. When faced with the challenges of not being able to visualise what