

# Therapeutic Horticulture Applications by the Industry in Singapore

text by

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Horticultural therapy and therapeutic horticulture use plants and plant-based activities to facilitate the well-being of individuals or groups.

## **Introduction**

The therapeutic horticulture movement debuted in Singapore in 2016, with the launch of the Therapeutic Garden at HortPark. Since then, there has been growing efforts in providing opportunities for more people to benefit from therapeutic horticultural activities. As the movement gains traction, there is a need to equip local “nature and health” practitioners with the professional skill set of a Horticultural Therapist and to promote the benefits of horticultural therapy and therapeutic horticulture to a range of population groups, including those in the healthcare, education, landscape and social service sectors. This article covers an introduction of the practice of therapeutic horticulture, and its industry development in Singapore, including various related initiatives led by individuals and organisations.

## **Horticultural Therapy and Therapeutic Horticulture: Definition and Development**

According to the American Horticultural Therapy Association (AHTA), horticultural therapy (HT) is the active use of plants or plant-based activities designed with established goals and objectives, to facilitate the treatment, rehabilitation or vocational training of individuals or groups. Similarly, therapeutic horticulture (TH) also uses plants and plant-based activities to facilitate the well-being of individuals or groups but does not require documentation of the process and outcomes.<sup>1</sup> The activities and the programs can be active or passive, and may be conducted by a registered horticultural therapist or other trained professionals. A horticultural therapist can work with a physiotherapist to treat a post stroke patient by conducting some of the therapy sessions in a therapeutic garden, such as assisted walk or



The Certificate in Therapeutic Horticulture serves as a condensed yet comprehensive introductory course for individuals in Singapore who are interested to utilise TH as part of their work, such as healthcare and social care professionals, programme coordinators, horticulture and landscape professionals.

simple activities like pot painting, plant propagation to train various skills, including fine and gross motor skills. The therapists conduct the sessions with specific goals and objectives, and the results will be clinically documented. Conversely, TH can be facilitated by a non-certified HT professional in a non-clinical setting. Overall goals can still be set for the clients, but they will not be specific to a client's particular condition.

Globally, the adoption of using horticulture for therapeutic purposes is still relatively low. Places with HT associations offering professional registrations are found in the United States, Canada, Hong Kong and Taiwan. Others like Australia, Japan, South Korea, China, India, Peru and parts of Europe have related institutes that offer training and knowledge sharing.<sup>2</sup> In the case of Singapore, while there isn't any set-up equivalent to the AHTA that officially governs the professionalism and registration of the HT practice, the National Parks Board (NParks) has been spearheading initiatives to promote the benefits of TH. In 2015, the agency launched a plan to develop a network of therapeutic gardens across various parks in Singapore. The initiative was regarded part of the 2015 Action Plan for Successful Ageing report (Ministry of Health, 2015), in response to growing concerns on rapid ageing population and increase in dementia cases in Singapore. Since, NParks has developed several related initiatives to promote the use of TH in healthcare settings and educational institutes.

### **Capacity Building**

During the early years of the TH movement in Singapore, NParks has engaged Ms. Elizabeth RM Diehl, an AHTA registered horticultural therapist and Director of Therapeutic Horticulture at the Wilmot Botanical Gardens (University of Florida) to co-plan the curriculum and train local practitioners to conduct TH activities and advance knowledge among allied professionals. Back at the University of Florida, Elizabeth leads the Undergraduate Certificate in Horticultural Therapy, a professional programme that bridges the gap between knowledge and practice. The programme has attracted enrolment from students internationally, including Singapore, some of whom are the pioneer practitioners of TH locally.

In 2016, NParks' Centre for Urban Greenery and Ecology (CUGE) offered the first Certificate in Therapeutic Horticulture, along with other related short courses. Subsequently, the course was handed over to the Ngee Ann Polytechnic (NP), under its Continuing Education and Training Academy. The course serves as a condensed yet comprehensive introductory course for individuals interested to utilise TH as part of their work, such as healthcare and social care professionals, programme coordinators, horticulture and landscape professionals. It covers topics like plant selection, maintenance, and pest & disease management, therapeutic garden design, aspects of working with individuals with Autism Spectrum Disorder (ASD), stroke, dementia, mental illness, as well as activity planning and documentation processes.<sup>3</sup>

## Therapeutic Horticulture Programmes in Public Parks

NParks followed on to introduce its first nationwide TH programming initiative to organize facilitated sessions at the therapeutic gardens of public parks. To date, many beneficiaries from various care facilities, including seniors, persons with dementia and others with special needs, have participated in the programme. A typical TH session would comprise simple warm-up exercises that lead to a curated walk through the therapeutic garden where the sensorial aspects of the flora and fauna are highlighted. This is followed by either a horticultural or plant-based arts & craft activity in the activity area of the therapeutic garden, usually with a sheltered space. The activities aim to promote low intensity exercise, improve motor skills, stimulate memory and promote mindfulness, and allow positive interactions in Nature. Some programmes also encourage intergeneration interactions between seniors and children. This aims to promote positive conversations and activities among them, and reduce social isolation in seniors.

## Employing Therapeutic Horticulture at Senior Care and Healthcare Facilities

It is known that incorporating greenery into healthcare settings have numerous positive effects on patients, visitors, and healthcare staff. TH has also been widely accepted as a valuable and versatile tool for rehabilitation and skill development when integrated into occupational therapy.<sup>4</sup> It can also be seen as a form of social prescription, playing a vital role in preventive healthcare. Using plant-based interventions like TH allows for both social and environmental elements into one's physical and emotional well-being. In particular, there has been numerous research done to understand its effects on seniors, including those with dementia. For example, a systematic review in 2019 concluded that TH benefits patients with dementia by alleviating the degrees of agitated behaviours, and increasing time of engaging in purposeful activities which in turn reduces time of doing nothing.<sup>5</sup> Locally, several scientific papers published has also provided the evidence that the nature-based intervention has the potential to be translated to programs to benefit seniors in the tropics.<sup>6</sup>

**Fig 1.**

The author, Tham Xin Kai, founder of Hortherapeutics, conducting a therapeutic horticulture session at the Therapeutic Garden @ Bedok Reservoir Park (Image credit: Pearlina Sim)



**Fig 2.**

A pressed flower frame making activity, part of the NParks Therapeutic Horticulture Programme at the Therapeutic Garden @ HortPark (Image credit: Oh Ahrum)



## Case Studies on Industry-led Therapeutic Horticulture Practices in Singapore

### Senior Care

Lace Ong is one of the pioneer graduates of the NParks' CUGE Certificate in Therapeutic Horticulture program. She works with participants including seniors, those with dementia, stroke recovery, and other terminally ill patients at the HCA Hospice. Her TH sessions include activities related to gardening, plant-based arts and craft, as well as flower arrangements, where they can be facilitated with positive emotive outcomes. Lace finds her work at HCA Hospice very meaningful, as she gets to teach new skills and share stories with her clients. Helping her clients cope in the last stage of their life has a powerful impact on her.

Another individual, Edmund Gan, employs knowledge of urban agriculture to help clients in hospital settings. Edmund is the founder of Sogen, where he conducts training on urban agriculture to impart agronomic principles, good agricultural practice skills, and awareness on food source and nutrition. Through the engagement at St. Luke's Hospital and Eldercare, he works with seniors with dementia and patients on rehabilitation. One benefit of employing TH in rehabilitation is its adaptability – the activities can be modified to suit the specific needs of individuals. For example, the activity of watering plants with pressurised sprayer benefits stroke patients with physical limitations, while the mud ball squeeze test is used for patients with poor hand dexterity and to help them learn about determining soil texture.



**Fig 3.**  
Lace Ong conducting a therapeutic horticulture session at a senior care facility (Image credit: Lace Ong)



**Fig 4.**  
Edmund Gan conducting a workshop on growing edibles (Image credit: Pearlina Sim)

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## Empowering Children

Both HT and TH can benefit children by promoting physical activity, sensory stimulation, and improved mental well-being.<sup>7</sup> For children with special needs, it can provide a structured and calming environment, enhancing their cognitive and emotional growth. When incorporating sensory plants into therapy, it is essential to consider the specific needs and preferences of the individuals involved. In this area, Edmund works with children and adolescents in schools, including those that serve children with special needs, such as mild to moderate ASD, Intellectual Disability, and Down Syndrome. Through his experience working with clients with cognitive limitations, Edmund emphasises hands-on activities, focusing on the sense of taste, smell, sight and touch. Examples of his activities are differentiating edible plants with Stevia (sweet) and Cranberry Hibiscus (sour), or comparing different scents from Rosemary, Lavender or Basil.

HT can also be used as a modality for vocational training, especially for children with special needs. Fion Tham, an Urban Farmer, certified in both Social & Therapeutic Horticulture, under Thrive, UK, and in the local Certificate in Therapeutic Horticulture, conducts vocational training for students with special needs. The training equips the beneficiaries with the skillset to work in the horticultural industry. A trained Mental Wellness Befriender, Fion also runs therapeutic sessions in forest trails and therapeutic gardens to cultivate interest and connect her participants with nature.

Another individual is Lee Mei Kheng. In 2023, she founded The Dreams Gardener as a platform to share her knowledge on growing edibles and plant-crafts with people, including people with special needs, to live an active and purposeful lifestyle through plant-based activities. Aside from pursuing the Certification in Horticultural Therapy from the University of Florida, she is currently building a greenhouse for plant-crafts making and on-demand horticultural services, to empower persons with special needs the ability and resources to live purposefully by growing edibles, or earning an income through plant-craft making.



**Fig 5.**  
Fion Tham conducting a walk in the therapeutic garden at Jurong Lake Gardens (Image credit: Tham Xin Kai)



**Fig 6.**  
Lee Mei Kheng conducting a plant-craft workshop with a participant (Image credit: Lee Mei Kheng)

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## Addressing the Therapeutic Needs of Individuals Recovering from Trauma due to Substance Abuse

The incorporation of TH into programmes serving seniors and children with special needs have generally gained acceptance locally. Its benefits on other population groups have also been explored. One such area is mental rehabilitation for conditions such as trauma due to substance abuses. Some research has shown the benefits of using HT/TH in the rehabilitation of addiction and trauma. Research conducted at the Florida Alcoholism Treatment Centre showed that HT activities such as planting, pruning, weeding allow for those recovering from addictions to experience physical sensations, hence increasing one's sense of effectiveness.<sup>8</sup>

Locally, Hortherapeutics, in collaboration with The Greenhouse Community Services Ltd, conducts the Micron Greenhouse Therapeutic Horticulture Programme for substance addiction recovery, benefitting marginalised communities. The Greenhouse adopted the bio-psycho-social-spiritual model of addiction, which considers the multitude of human conditions influenced by biological, psychological, social factors, as well as spiritual aspects of beliefs, values in its community.<sup>9</sup> TH can help the beneficiaries understand the dimensions of their life that need to be tended to in order for them to heal and grow.

Understanding the multitude of internal and external conditions affecting substance addiction is crucial to creating a recovery roadmap for the group. The 8-month programme composed of three runs of six sessions for counsellors, peer supporters, and the main participants. At the start and end of each run, participants were instructed to fill up the Short Warwick Edinburgh Mental Well-being Scale (SWEMWBS) survey.<sup>10</sup> During the sessions, participants explored themes of hope, purposes and identity, through gardening and nature-based art activities, including rare plant propagation, seed mandala and terrarium making. For example, growing plants in the self-contained environment of a terrarium can be used as a metaphor for self-care and self-worth. When plants undergo stress because of changes in growing conditions, they may adapt to changes in order to survive. This emphasis on self-resilience can be rediscovered by the participants themselves through doing the activities. The results of the post-session SWEMWBS survey, weekly observations, and an End of Programme survey, showed positive outcomes in the participants - learning new skills and insights from each session have been incorporated into their own healing journey. Some of them continued as peer supporters to help run future programmes at The Greenhouse.



**Fig 7.**  
Participants for The Micron Greenhouse Therapeutic Horticulture Programme engaging in a pressed flower bookmark-making activity (Image credit: Tham Xin Kai)





**Fig 8.**  
Ganesh Kumar giving a public tour at the Woodlands Botanical Garden, located in Woodlands Town Park East (Image credit: Ganesh Kumar)

One way to raise awareness of the benefits of TH to the public is through community-based initiatives. The Woodlands Botanical Garden (WBG), supported by NParks and located within Woodlands Town Park East is one such initiative. Efforts of the garden is led by Ganesh Kumar, a chemist by profession who now focuses his time on horticultural works and educating the public on biophilic engagements through various initiatives. The garden is a place where Ganesh and his team of volunteers works with partner groups to improve biodiversity in gardens and restore habitat of various flora and fauna, as well as facilitate sessions for participants to improve on their mental well-being.

One of their programmes involves working in collaboration with Human-Animal Bond In Ministry, a social enterprise that runs regular animal assisted intervention sessions at the garden. The sessions encourage plant-people-animal interaction to groups like seniors, children from foster homes and those with special needs, as well as ex-convicts. This programme, including other similar ones conducted, also allows residents and members of the public to come together for various events.

## Conclusion

Through NParks' research and TH-related initiatives, the practice of TH emotive outcome is gaining traction in Singapore. TH has now been incorporated in several senior care institutions, healthcare settings and schools. Last, at the community-level, therapeutic gardens and places like WBG function as venues where TH and other nature-based activities can be conducted, raising awareness about using plants and plant-based activities to improve health and well-being.

The community of TH practitioners is slowly growing in numbers, as more individuals are pursuing professional education in HT, locally or abroad. It is well established that HT and TH facilitate the improvement in health and well-being. Their seamless integration into healthcare and social settings promises continued growth. As a society recognizes nature's healing potential, the practice stands ready to play a pivotal role in enhancing individual lives and communities.

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## FOOTNOTES

- <sup>1</sup> AHTA Office. "AHTA Definitions and Positions." American Horticultural Therapy Association. Accessed January 4, 2024. <https://www.ahta.org/ahta-definitions-and-positions>.
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