

IAN WARRINGTON: **The Controlled Environment Pioneer**



A person worthy of being termed a pioneer in their chosen field is actually somewhat rare to encounter, but such a moniker is deserving of Ian Warrington, a longtime ASHS member who has illuminated the world with his decades compilation of research and who changed global methodology in the arena of controlled-environment science.

There is no way to read him any other way: Ian Warrington is Kiwi to the core. He loves New Zealand, and he promotes its virtues at every available opportunity. He waxes philosophically over the national rugby team, the All Blacks, and he celebrates their performances, be they exhibitions of spirited brutality as witnessed every time in their competitiveness or their pre-game cultural show of intimidation, the Haka.

<https://www.youtube.com/watch?v=3A4Ya0Ur5gU>

But Warrington is not himself an intimidating man. He is a man who has lived his life to bring out the best of New Zealand through science, research, and the breadth of horticulture's graces. He's a giver. And he is easy to approach.

He grew up in Hastings in the Hawke's Bay area of New Zealand surrounded by horticulture. Both his parents possessed "green thumbs". His father, a building supervisor in the construction industry, proved skillful in growing vegetables. His mother, a loving homemaker, was unmatched in growing ornamentals. Both of them encouraged young Warrington to have his own vegetable patch at an early age, and he cherished watching "his" plants grow and develop – and then consuming the results.

Hawke's Bay is loaded with industries dedicated to fruit growing, vegetable processing, wine production, and nursery services. Any time off from school he spent at work on commercial farm properties. Local growers and field extension staffers were keen to share their knowledge, and Warrington soaked it up like a sponge.

As a school boy, Warrington made a regular presence of himself among the good folks of the horticulture division of the Department of Scientific and industrial Research (DSIR), and they generously provided him access to their ongoing projects and clued him in to the depths of their voluminous knowledge. With that, coupled with his enviable high school academic performance, Warrington was exceptionally well equipped for his undergraduate experience at Massey University where he majored in horticultural science.

After earning his bachelor's degree in 1969, he continued on at Massey within the Masters program. Some years later, he scored his doctorate from Massey too.

His Masters research project was to design the lighting system for the New Zealand controlled environment center (the DSIR Climate Laboratory) as it was then being developed. The facility was conceived to be a pioneering testament from the get-go. Innovatively, it used high-pressure discharge lamps in conjunction with quartz halogen lamps as the primary lighting source, and it employed a water barrier in each large walk-in controlled-environment room to filter out the heat load. Ian Warrington found himself in an ideal spot to put his own stamp on the place and ferret out positive results amid the whirlwind of experimentation.

The equipment soon performed desirably, and the research, largely geared toward replicating the daylight spectrum, was a success! The light intensities realized could effectively match those of peak sunlight values, and Warrington was intertwined with its innovation. This particular victory at his young age was the sextant guiding him into much of his future. He went on to become *the* staff member responsible for coordinating *all* of the biological research projects run at that facility over the next 25 years.

This New Zealand CE Laboratory was world-leading in many respects. The technical team involved with the facility installed and utilized humidity and CO₂ control in each room (unusual capabilities at that time), included the ability to simulate daylight and shade-light across a wide range of quantum fluxes, and developed unique low temperature frost facilities. The laboratory was able to host a stunning array of projects from all areas of the biological sciences within the country, and the cutting-edge facility also attracted a lot of international interest from science communities in the United States, Great Britain, Germany, Japan, Australia, and Canada.

Warrington's own research blossomed and stepped up dramatically. He dipped his toe into every pool, covering horticultural, agronomic, pasture, forestry and native plant species and their responses to light intensities, light quality, day length, extreme temperatures, and carbon dioxide. His experience in the controlled environment sciences and his continuing passion for horticulture saw him taking his skillset into the field to tackle real world industry problems. This led him to conduct research into the impacts of light on the growth and development of crops such as apples, kiwifruit, and grapes. And this further led to him becoming well known across the horticultural science spectrum.

In 1995, Warrington was appointed Chief Executive of The Horticulture and Food Research Institute of New Zealand (HortResearch), one of the newly formed government-owned Crown Research Institutes. This involved the challenging role of stewarding a staff of over 550 across 12 research sites through the new era of "user-pays" policies and privatization of government-owned entities. ASHS members followed those developments closely at the time but believed that similar changes would never take place in the USA.

Subsequently, after a satisfying period of government research and consulting in the private sector, he returned to Massey University where he accepted a professorial post in horticultural science that allowed him to nurture eager young minds and further his own body of university-sponsored research and development. His work there never became boring. He went on to involve himself in administrative concerns, and take on the role of Deputy Vice Chancellor.

Warrington speaks fondly of his involvement with ASHS, feeling that our organization provided him with a wide range of benefits that have impacted his career trajectory. He first joined us in 1981, and he embraced us as an inseparable component of his identity. Based on his own positive experiences within our ranks, he actively encourages young scientists to avail themselves in what we do and to get involved.

Initially he feels that developing a professional network of contacts was critical in his being able to approach fellow scientists and researchers directly with problems, ideas, collaborations, and simply for confirmation that whatever projects he was undertaking were worthwhile and on the right track. Being able to mingle both professionally and socially with a large number of university and government researchers had a major influence on his professional and personal lives.

Membership within ASHS as a young scientist was followed quickly with a number of collaborative projects between the USA and New Zealand, especially in the areas of controlled environment biology and pomology. Several ASHS members travelled to New Zealand on their sabbatical leaves, and Warrington and his family twice came to the States for similar reasons, once on a Harkness Fellowship, an earned honor that has since been folded into the Fulbright system. Significantly, these visits spawned life-long personal friendships with many in the USA, broadening the collegiality and understanding between two cultures.

These reciprocal visits led to very productive collaborative research activities with consequent research publications spanning flowering studies on ornamental plants, the impacts of lighting systems and lighting regimens on plant growth and development, and studies into a number of aspects of development in apple tree canopies.

New Zealand is a small country, and it would be quite easy to become insular in every respect. But his membership within the international organization of ASHS allowed Warrington the chance to benchmark himself against the best and most respected in the world in his own chosen fields of research and development. The professional standards set by those he met at our annual conferences both in the presentations of papers and posters as well as in the business meetings were what he recognized as being of the highest order and palpably transferable to his own situations at home.

With the help of a small group of respected colleagues, Warrington established the New Zealand Society of Horticultural Science (subsequently merged with its agricultural “cousin” to become the New Zealand Institute of Agriculture and Horticultural Science) which was largely patterned after ASHS. He was the inaugural Secretary.

Later in his career as a leading scientist and administrator, the professional networks that he had established through ASHS provided him the opportunity to fulfill other, similar roles internationally, especially within the ISHS.

Peer recognition at an international level, such as that delivered by ASHS, proved instrumental in terms of defining a context for in-country credibility and for maintaining globally appreciated standards at home in New Zealand. Those elevated standards remained instrumental throughout his career and were reflected in published manuscripts, the overall level of outputs achieved, and his accomplishments in science leadership and management roles. Receipt of various ASHS awards and distinctions also indicated to those within his country (including co-workers, colleagues and managers) that he adhered to the highest plateaus in the work to which he was dedicating his life. And that echelon of distinction often led to promotions for him and his colleagues.

Over the years, Warrington has contributed much to ASHS beyond being a truly dear member, a delight to encounter, and an apostle for New Zealand. For example, he helped with our International Advisory Council and our Continuing Education Committee, and he assumed leadership positions such as serving as Vice President for the International Division. In 1994, he became an ASHS Fellow. Three times, he was honored with the “best journal publication entry” award.

ASHS has remained a key element in his life, even in retirement. Warrington was involved for several years as the editor of the Journal of the American Pomological Society, and he is currently the editor of Horticultural Reviews (following in the “very large footsteps” of Jules Janick). Networking with ASHS members has assisted him in securing needed copy for these important publications.

Warrington reflects that ASHS has consistently situated itself as an unparalleled organization internationally in the very wide field of horticultural science. He openly marvels that the astonishing *modus operandi* on display in oral and poster presentations at our annual conferences, in the business meetings, in our various scientific journals, and through our web-based activities have raised the bar for professional and scientific behavior worldwide. He counts being able to contribute to ASHS among the more rewarding circumstances of his storied career.