MICHAEL (MIKE) JOHN WINGFIELD

TOP THREE AWARDS

- The Christiaan Hendrik Persoon Award (Gold Medal) of the Southern African Society for Plant Pathology (one of only six awards of this honour made by the SASPP up to 2015), 1999
- The National Science and Technology Forum (NSTF) (first-ever individual award made), 1998
- The Kwame Nkrumah Science Award of the African Union, 2013

DEFINING MOMENT

Moving to Stellenbosch as an agricultural researcher.

WHAT PEOPLE DO NOT KNOW

He lost 11 balls in an 18-hole round of golf. He mixes his own tea, a blend of 40% Darjeeling, 40% Assam and 20% Lapsang Souchong.

CARING FOR THE TREES

Professor Michael Wingfield is a National Research Foundation (NRF) A-rated scientist who specialises in studying the health of trees, whether in the wild or in plantations.

As he insightfully points out, an avocado tree in a Lowveld orchard is the same tree that one will find growing wild in the forests of Venezuela. And all other plantation trees in South Africa are native to another, non-South African environment. Whether this is a good thing or not, he notes, is a subject on which he can readily argue from both positions – while pointing out that if the 'indigenous only' position were taken to its logical conclusion, South Africa would, for instance, not be growing wheat, or grapes.

The critical issue, however, is that of forest health – whether the forests be indigenous or not. Sugden *et al,* for instance, have this to say:

Forests and woodlands cover about 20% of the earth's land surface, spanning all but the highest latitudes. In the millennia since humans dispersed across all forested continents, we have transformed large areas of natural forest. Only a fraction of the forests present centuries ago have escaped human influence… Humans have… introduced new species, including pests and pathogens of trees… Even though modern forests are generally much altered from their natural state, their 'health' still matters. It will dictate whether forests persist and function into the future, sustaining wildlife, producing timber, sequestering carbon, and performing other services.

In a paper in the same edition of *Science,* written by Wingfield and his co-authors, they point out that:

Forests and woodlands ecosystems are a hugely important natural resource, easily overlooked and undervalued. Globally, one in six people is estimated to rely on forests for food and many more depend on forests for other critical ecosystem resources... However, the health of forests, both natural and managed, is more heavily threatened at present than ever before.

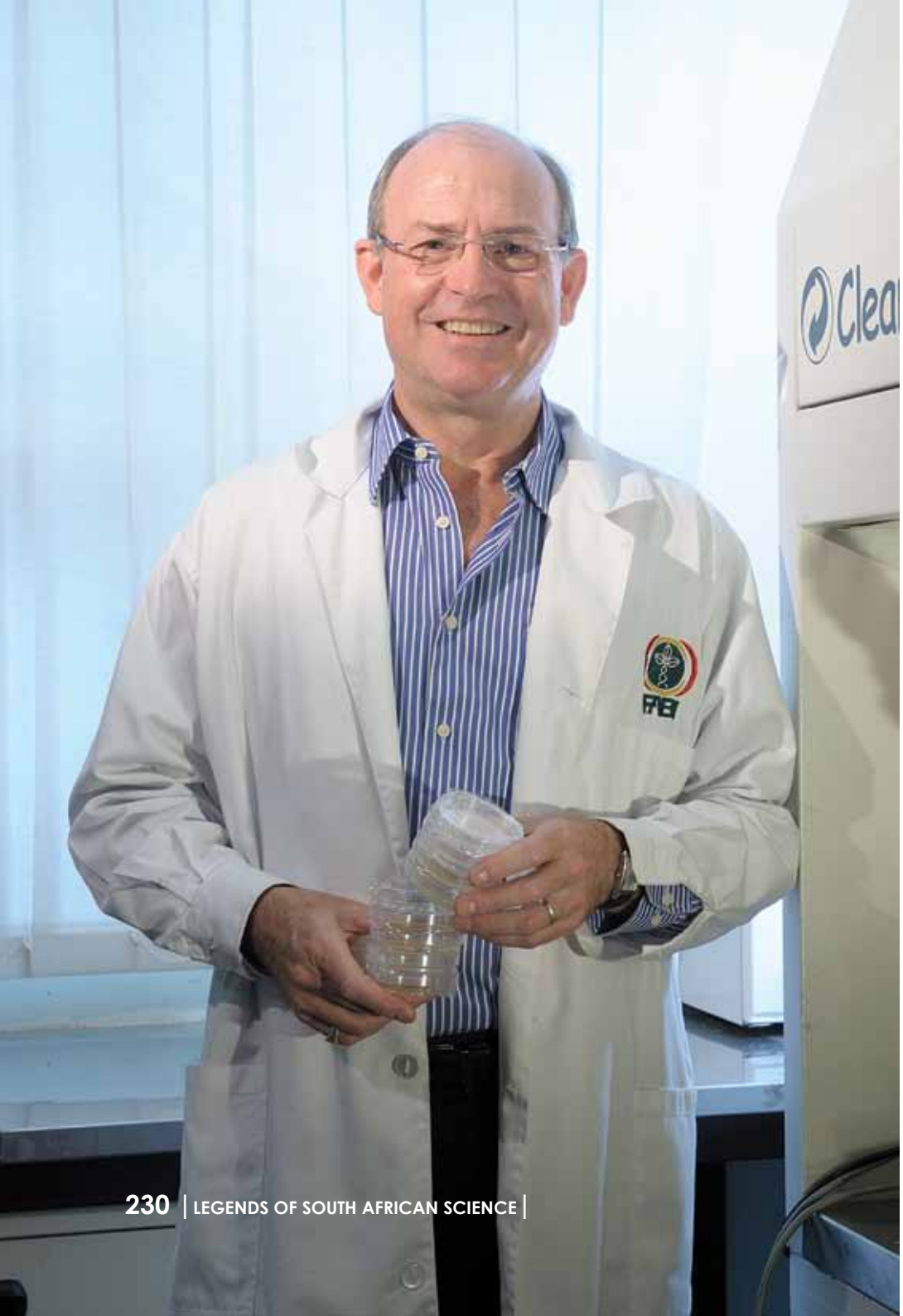
The areas of science in which Wingfield works are of considerable significance in terms of human well-being, economic stability and environmental strength and environmental health in far more general, global terms.

Wingfield was born on the KwaZulu-Natal south coast and soon after, his parents moved to Harare (then Salisbury) where they lived until he was about six. Thereafter, they returned to South Africa, settling in Irene, outside of Pretoria. He grew up with his parents and grandfather, who had built a home in Irene, amidst the grasses of the Highveld. He has been interested in nature from his young days and recalls feeding an asprin to a frog and then dissecting it to see what happened, and also growing seeds of various kinds and checking their growth and development; a Gerald Durrell of the Southern Hemisphere, whose interest moved decisively into the Plant Kingdom. Wingfield was close to his grandfather, who had a PhD in English literature and was one of the first people in South Africa to be trained in forestry in Tokai.

EARLY YEARS

He enrolled at the University of Natal in Pietermaritzburg where he completed a BSc degree in botany and plant pathology. During his holidays, he worked for the Botanical Research Institute in Pretoria where he gained considerable practical experience from the institute staff, and then completed a BSc (Hons) degree in plant pathology. In his Honours year, he met Brenda Fairbairn, then a first-year student. They were later to be married and to become not just a family but also a working partnership.

At that stage, Wingfield wished to continue with postgraduate studies in Pietermaritzburg but as his degrees had been part-funded by bursaries from the then Department of Agriculture, he was required to 'work-off' his funding. In 1978, he became an agricultural researcher in the Plant Protection Research Institute in Stellenbosch. This move was a defining moment in his career. Even at that early stage in his career, Wingfield was a scientific entrepreneur, and started the first Forest Pathology Programme in South Africa while also studying for a Masters degree at Stellenbosch University, which he completed in 1979. He also developed a passion for growing peanuts and the diseases to which they are subject – but forests and their trees steadily drew him above ground again.



During this time, he was introduced to Walter (Wally) Marasas, a world-renowned mycologist who helped him to write his first international scientific article – *Verticicladiella alacris sp*. nov., associated with a root disease of pines in South Africa – published jointly with Marasas in the *Transactions of the British Mycological Society*. Yet another defining moment he says – his meeting with exactly the right person at the right moment in his life.

Wingfield notes that, while this article came back from the editors with the comment "perfect paper", his second paper was, "so black and blue" that he felt seriously depressed – although he notes that after publishing over 700 research papers, he still has submissions turned down: such is the nature, and importance, of rigorous review processes, as he reminds his postgraduate students and postdoctoral fellows.

His Masters degree completed, Wingfield set off for the University of Minnesota in 1980, where he completed his PhD in 1983, during which time he also worked as a research assistant. On returning to South Africa in 1984, he was employed as a senior, and then specialist, researcher in the Plant Protection Institute in Stellenbosch, moving in 1988 to the University of the Free State to become an Associate and then full Professor in the Department of Microbiology and Biochemistry (with a co-appointment in the Department of Plant Pathology). In 1994, he was the Mondi *ad hominem* Professor of Forestry Pathology and a Visiting Professor for Plant Pathology at Iowa State University.

In 1998, he joined the University of Pretoria (UP) as Professor and founder of the Forestry and Agricultural Biotechnology Institute (FABI), where his Mondi professorship was re-instated. After a short period of research in Canberra, he returned to UP and FABI.

CONTRIBUTION TO FORESTRY

Wingfield's highly cited research in his field, conducted in many different countries of the world but with a strong focus on Africa, has led to the discovery of some of the most important pathogens of trees grown commercially in plantations. It has also elucidated elements of the biology and

global movement of many of the most important pests and pathogens of trees, substantially contributing to new management options and solutions to problems that have reduced losses to industry. Based on his research reputation, he has been a long-term advisor of many major forestry corporations in South Africa and globally.

Amongst his most important contributions to forestry has been the role that he has played as an advisor to more than 70 PhD and an equal number of MSc students, many of whom now hold very senior positions globally. He has also worked closely with almost 60 postdoctoral fellow and visiting scholars, primarily during his years at FABI at the University of Pretoria. In this regard, he has been heavily involved in providing education opportunities for students, capturing his deep commitment to research and education particularly in the developing world. He was responsible for establishing the Tree Protection Co-operative Programme (TPCP) in 1990 to minimise the impact of pests and pathogens threatening commercial forestry in South Africa and this has become the largest single tree health project in the world. It also formed the catalyst for the establishment in 1998 of the FABI of which he was the founding Director.

FABI has rapidly gained substantial international recognition for research excellence and the post graduate education of large numbers of students, many from disadvantaged backgrounds.

Wingfield has published widely on the topic of tree health in more than 700 research papers and six books, and he has presented many invited plenary addresses and other public lectures globally. Research, he says, is a compelling, addictive process. He has served or still serves in many distinguished positions including the boards of institutions such as the Council for Scientific and Industrial Research (CSIR), the International Union for Forestry Research Organisations (IUFRO) and the *Centraalbureau voor Schimmelcultures* (Netherlands), and in most of these for extended periods of time. He has received many awards and honours for contributions to education, research and industry, in South Africa and elsewhere in the world.

While his curriculum vitae is almost 200 pages long, he says it is team work, collaboration and long-standing friendships that have typified his almost 30 years of active research and he never tires of being fascinated by the amazing 'stories' that emerge from his research on the health of trees. That Wingfield values such cooperation is also reflected in other ways. He feels, for instance, that the astonishing number of scientific bodies to which he has or continues to make substantial contributions; his publication record, and, most critically, his remarkable list of high-level awards, all "belong to, or are supported by others". There are two facets to this, he explains. Scientists who have received those awards more recently have, he points out, won them in the increasingly competitive world of scientific research – in which, ever higher standards are demanded. More importantly, he says, the awards he has received are the result of team work and collaboration: while he received the awards, it has been those who have worked with him who have made them possible. "Brenda (his wife, who is an NRF A-rated scientist in the field of fungal population genetics) probably deserves half of my awards – but how does one say to an organisation 'why not give that to my wife?'" It is essential, he says, that scientists should be appreciative of the people who have helped to make them who they are.

2017

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