

## **Dr. Tijs Gilles - Statement of Accomplishments**

Dr Tijs Gilles, Ph.D., M.S., B.S., graduated for M.S. in Plant Breeding at Wageningen University in the Netherlands in 1996. In 2000, he completed his Ph.D. at Rothamsted Research in the UK on the epidemiology and forecasting of light leaf spot, a plant disease causing significant yield losses in the UK on canola. This Ph.D. study led to the publishing of 7 scientific papers, and a collaboration with Kettle Produce in Fife Scotland to predict light leaf spot infection in sprouts.

In 2000, He was appointed as Senior Plant Pathologist at Horticulture Research International (HRI), in Wellesbourne, UK. In this time, he developed disease forecasting models for onion downy mildew and leek rust. The onion downy mildew model had a higher prediction accuracy compared to any of the models existing at the time and was successfully applied in a collaborative project with local spring onion producers to manage the disease. He was supporting the British Society for Plant Pathology (BSPP) as Membership Secretary.

He was appointed to the position of Senior Leek Breeder at Syngenta Seeds in the Netherlands in 2005. During this time, he developed several new commercial leek varieties, of which “Levis”, “Delmas” and “Mercurian” were the most successful. He initiated a working group within Syngenta to improve the selection of new commercial varieties based on well-designed trials and statistical analysis. This led to significant changes in the way variety trials were done and the organisation of the trialling team. In 2007, Syngenta acquired the Danish company “Daehnfeldt” for their spinach breeding program. Following the acquisition, he was asked to integrate the spinach breeding program and take on the role of spinach breeder to deliver varieties for the USA, China and Japan, Australia and Europe. During his work as spinach breeder, he released several babyleaf and Asian bunching varieties with dark leaf colour and downy mildew resistance. He was a member of the International Working Group on *Peronospora farinosa* (= spinach downy mildew) to evaluate and nominate new downy mildew strains infecting spinach.

In 2013, he joined British American Tobacco (BAT) as Molecular Breeder, Scientist II. He was later promoted to Gene Application Manager. At BAT, he was responsible for the development of novel genetic traits to reduce toxicants and nicotine in tobacco, and the transfer of these new trait technologies to the breeding teams in Brazil (Souza Cruz, BAT) and USA (RJ Reynolds). He successfully identified lines carrying natural mutations that resulted in a significant reduction of tobacco-specific nitrosamines, which are highly carcinogenic compounds. Furthermore, in a collaboration with the University of Kentucky, he was involved in the identification of genes regulating the nicotine pathway in tobacco. Mutations in these genes resulted in ultra-low nicotine tobacco lines. He was involved in implementing high-throughput marker-assessment equipment in the plant breeding laboratory in Brazil. This greatly increased their capacity to select for traits by associated markers and enhanced the speed of breeding and its efficiency.

Since 2023, he is working as Molecular Breeder Senior Manager at 22<sup>nd</sup> Century Group Inc. to breed for medicinal compounds in cannabis and hops applying molecular breeding and genomics.