

Jan Toerien
avodata@optusnet.com.au

Professor J.M. Kotzé
adrikokanje@psgoptimum.co.za

Joe Darvas - An Appreciation of his Contributions to the Avocado Industry

The next time you see someone injecting an avocado tree with phosphorous acid you should think of Joe Darvas, the person who pioneered the protocol to save avocado trees from the ravages of avocado root rot caused by *Phytophthora cinnamomi*. Joseph (Joe) Darvas is a native of Hungary where he studied plant pathology. He represented Hungary at international events and immigrated to South Africa with his wife Magdalena in 1974.

Joe continued his studies at the University of Pretoria under the guidance of Prof. J.M. Kotzé and completed his Master of Science and Ph.D. degrees in Plant Pathology in 1982. Joe was a committed student and researcher.

Joe joined Westfalia Estate in 1976 as a research pathologist and worked in a research team with Jan Toerien. The main objective was to find a cure to Phytophthora root rot that affected thousands of acres of avocados in South Africa. The Westfalia research team cooperated with many research workers, research stations and universities world-

wide. Prof. Kotzé and Dr. John Moll were excellent cooperators and contributed with information, literature and discussions. Joe Darvas was involved in many developments and technological breakthroughs and the list of his achievements is impressive.

Westfalia was the first to treat young and mature avocado trees with Ridomil and Joe's prediction that *Phytophthora* would develop resistance to this material was proven correct within a few years. Aliette foliar spray treatment was developed but was replaced soon with the injection technique. Rhone Poulenc (the manufacturer of Aliette), in an attempt to protect its product, delayed publication of the scientific data for several years.

The motivation to find an alternative to Aliette led to the development of the phosphorous injection technology by the Westfalia research team. Joe played a major role in the development of the technology and did intensive studies to ensure a safe and efficient treatment that would achieve long term control of *Phytophthora*. Rhone Poulenc again protected patent rights and restricted publication of results. The work of the distribution of phosphonates in the avocado tree is considered classical plant pathology research. The spin-offs of this knowledge made ripples in the annals of plant pathology despite the fact that some researchers exploited the limitations on publication of this research work.

Joe made thousands of isolates and used the lupine technique to monitor the effect of treatments on trends in soil pathogen populations. Joe selected about 10 antagonists to root rot pathogens and shared them with other research workers. Joe was also very involved in, and contributed to, the selection of root rot tolerant rootstocks such as Dusa and Latas that are used today in a number of countries.

Joe did excellent studies on pre- and post harvest diseases of avocados. His thesis on the etiology and control of fruit diseases of avocado will contribute to healthy fruit management for future generations. His PhD thesis, along with many other publications he authored, can be found on www.avocadosource.com.

Joe Darvas made a major contribution to the control of *Phytophthora* and fruit diseases of avocado. Although restrictions prevented Joe from publishing all his research, he received a number of invitations to speak at international congresses and he has been recognized by the avocado community. Joe was honored with an award

for excellence at the World Avocado Congress II (1991) and with the Golden Avocado award by the South African Avocado Society.

A personal reflection by J. Toerien

The greatest pleasure that I can share with the brilliance of Joe Darvas was confirmed again this afternoon when I visited a healthy avocado orchard in Australia that has recovered by using Phosphorous acid injections. I feel proud and privileged for the opportunity I had to work with Joe Darvas and the Westfalia research team.