Proceedings of the Fourteenth Conference of the International Organization of Citrus Virologists

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Dedicated to E. Clair Calavan

(1913-1998)

Friend, Mentor, Scientist

These proceedings are dedicated to Dr. Edmond Clair Calavan, a dedicated citrus pathologist and a champion of citrus virology for over a half century. It is fitting that we dedicate the Proceedings of the 14th Conference of IOCV to our past chairman and long standing friend of so many of our IOCV members.

Dr. Calavan was born in Bilyeu Den, Oregon in 1913 and attended Oregon State College for his B.S. (1939) and M.S. (1941). He received his Ph.D. in Plant Pathology in 1945 from the University of Wisconsin and was appointed to the Citrus Experiment Station at Riverside that same year. He became a Full Professor in 1962 and retired in 1980. Among his many contributions on diseases of citrus was the co-discovery and culture of the stubborn disease organism, *Spiroplasma citri*, and the understanding of the biology of several viruses, viroids and fungal diseases as well as many advances in indexing procedures. With Dr. Walter Reuther, he established the world renown Citrus Clonal Protection Program and designed and helped plant the first Foundation Block trees at Lindcove in 1961.

Clair Calavan was Chairman of IOCV from 1972-1975 and was elected Fellow of the American Phytopathological Society in 1977. He was a mentor to so many of his associates. He was a graduate student advisor at UC Riverside and had a profound impact on all of his many graduate students.

On a personal level, he loved camping and with his wife Georgie ventured into the remote deserts of Baja, California, their favorite haunts. Each year in December, we would all visit the Foundation Block at Lindcove in Central California. He would walk slowly around each tree, scrutinizing every aspect of its character, taste the fruit, check its quality, study the branches and trunk for abnormalities. Only the best trees which met his criteria were selected as source trees. This Foundation Block was his and Dr. Reuther's gift to California and to the world, and we are indebted to them for developing this most important block of virus tested, virus-free and true to type trees.

The people, the ideals and the objectives of the IOCV meant much to Clair and were an important part of his life and his work. The tributes of friends of IOCV were many and heartfelt, and we who knew him are left with so many pleasant memories, plus the legacy of his valuable and well written publications. He was my mentor, guide, teacher and councilor and his memory lies deep within me. I feel sure that others who knew him feel his presence and the impact of his loss.

C. N. Roistacher

PREFACE

The 14th Conference of the International Organization of Citrus Virologists was held in Campinas, São Paulo State, Brazil, September 13 to 18, 1998. It was preceded by a pre-conference tour of Uruguay which incorporated the 4th International Citrus Tristeza Virus (CTV) Workshop.

The pre-conference tour began in Montevideo on September 7 with a visit to the Citrus Certification program center at the Ministry of Agriculture at Sayago, Montevideo. After viewing the laboratories, greenhouses, budwood multiplication, indexing, etc., delegates began a day-long bus ride to Salto, stopping at the farm of Sandupay S.A. (Paysandú) to view citrus cultivation and psorosis infections. The next day, the Citricola Saltena farm in Salto Department and the Caputo packhouse were visited. In the afternoon the opening ceremony of the CTV Workshop, for which 46 delegates from 14 countries were registered, took place at the Salto Grande Dam conference center with opening addresses from IOCV Chairman Richard Lee, Organizing Committee President Marta Francis and Uruguay Society of Phytopathology President Marta Díaz. There were then presentations on the Uruguayan citrus industry and a review of tristeza worldwide. On the second day presentations on tristeza situations in several countries were given. During the lunch break, there was a guided tour of the Saltoa Grande Dam hydroelectricity plant, and in the evening delegates were entertained in the Larañaga Theatre by the Coro Municipal de Salta. On Day 3, a visit was organized to a nearby grove where a canker inspection team was busy with a follow-up inspection after detection of canker and tree removal earlier in the year. The workshop then resumed with presentations on CTV detection and strain differentiation, maintenance of germplasms and cross-protection. On Day 4 the National Institute of Agricultural Research was visited. The workshop reconvened with discussions on certification schemes. After the closing ceremony, delegates attended a dinner party at the Hector Quiroga Hotel. The next day delegates returned to Montevideo by bus, with stops at the Dayman thermal baths near Salto and the historic city of Colonia. Participants expressed their appreciation to the organizers, especially to Drs. Marta Francis and Ana Peralta, and to the personnel of Sucessos.

The 14th Conference of the IOCV was held at the Royal Palm Plaza Hotel, Campinas, São Paulo State, Brazil from September 13 to 18. There were 104 delegates from 18 countries. On the evening of September 13, delegates were welcomed by Dr. Joaquim Teófilo Sobrinho, Chairman of the National Organizing Committee, and after receiving a message of welcome from Sr. Eduardo Bulizoni, Director of the Agronomic Institute, on behalf of the Secretary of

Agriculture, an overview of citriculture in the state was given by Dr. Admerval Garcia, Director of FUNDECITRUS. This was followed by a cocktail party.

The first day of the conference was devoted to papers on tristeza, followed in the evening by a poster session on tristeza, psorosis and surveys/certification programs. Day 2 covered psorosis, leprosis and graft- and insect-transmitted bacterial diseases, with another evening poster session covering other citrus viruses, bacterial diseases and viroids. On Day 3, delegates visited the Sylvio Moreira Citrus Research Center in Cordeirópolis, where there were presentations on the research programs at the center by the Director, Dr. Marcos Machado, citrus variegated chlorosis (CVC) by Dr. Victória Rossetti and the *Xylella fastidiosa* genome project by Dr. Andrew Simpson. After lunch, delegates visited Casa Branca County to view tristeza and blight, and Mogi-Guaçú County to see CVC. Day 4 of the conference covered other viruses, CVC, blight and viroids, and Day 5 was devoted to papers on surveys and certification programs. In all, 77 papers and 52 posters were presented. The business meeting was held at the end of Day 5, during which an invitation to hold the 15th Conference in Cyprus was made by Dr. Anastasia Kyriakou. At the IOCV farewell banquet, the Wallace Award for the best paper at the 13th conference was announced; the winners were Drs. Ahlawat, Pant, Shukla and Lockhart for their paper on citrus yellow mosaic badnavirus. IOCV Chairman Richard Lee handed the gavel over to Patricia Broadbent, and the election of Pedro Moreno as Chairman for the 2001-4 term was announced. The organizing committee was warmly thanked for their excellent organization. A slide show of past IOCV conferences was presented.

The conference was followed by a two-day weekend bus excursion for 40 delegates. On Saturday September 19, delegates visited the FUNDECITRUS headquarters in Araraquara. An interesting observation was the presence of the huanglongbing vector, *Diaphorina citri* on *Murraya* at the headquarters. After lunch, Cambuhy farm was visited to see blight, leprosis, CVC and coffee trees infected with another strain of *X. fastidiosa*. In the evening, a Brazilian barbecue in Araraquara was enjoyed. On the Sunday, the 7 Lagoas Farm in Mogi-Guaçú was visited to observe blight and general citricultural practices, After a splendid lunch on the farm, delegates traveled to São Paulo international airport.

The post-conference tour was held in Belize, and included the first international citrus symposium there organized by the Citrus Research and Educational Institute (CREI) on September 23 at the Belmopan Convention Hotel. The meeting was attended by 85 delegates from seven countries, including some Caribbean nations. A two-day technical tour was arranged after the symposium to see various diseases and management strategies being implemented by growers. Several nurseries were also visited. Afterwards, a list of 10 recommendations was developed in consultation with experienced scientists to help Belize improve fruit quality and yield. CREI personnel were warmly thanked for hosting the post-conference meeting and tour.

All full length papers in these proceedings were reviewed by two referees. We express our sincere gratitude to the following who served as referees: G. Albanese & R. La Rosa (*Univ. Catania, Italy*), Y. S. Ahlawat (*IARI, New Delhi, India*), M. Bar-Joseph (*Volcani Center, Bet-Dagan, Israel*), R. H. Brlansky, K. S. Derrick, M. Mawasssi, S. M. Garnsey, J. P. Syvertsen & L. W. Timmer (*CREC, UFl, Lake Alfred, FL USA*), P. Broadbent & D. Hailestones (*EMAI, Menangle, Australia*), N. Costa (*EEA INTA, Concordia, Argentina*), J. A. Dodds, L. J. Marais, C. N. Roistacher, M. Roose, J. S. Semancik & T. Williams

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