

INTERNATIONAL ORGANIZATION OF CITRUS VIROLOGISTS

Board of Directors 2001-2004

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IOCV NEWSLETTER

July, 2004

FROM OUR CHAIRMAN

Dear friends and colleagues,

We are about four months from the XVI IOCV Conference and hopefully all of you have received the second circular with the schedule of the conference and pre- and post-conference field trips. Mario Rocha, John da Graça and Sergio Curti seem to have organized diverse and attractive programs in their respective areas, which promise to make this conference very exciting and enjoyable. I strongly encourage you to make arrangements to attend it and submit as soon as possible abstracts presenting results of your current research. IOCV conferences provide an excellent opportunity to discuss our research results on graft-transmissible diseases of citrus with other people working on this specific area of citrus pathology.

Several events important for our organization are linked to the conference celebration and I wish to send a new reminder on them:

- 1) We have to decide the new Chairman-elect for the period 2007-2010 and nomination of candidates is open until July 31st. It is the responsibility and the duty of all IOCV members to participate in this important decision. Please, do not forget to send ballots with your candidate to the IOCV Secretary Chester Roistacher, Department of Plant Pathology, University of California, Riverside ,CA 92521. USA
- 2) The Board of Directors should present in the business meeting potential sites to celebrate the XVII IOCV Conference in 2010. The Conference Location Committee has been working on different possibilities and formal invitations from two countries hopefully will be received soon. However, any IOCV member wishing to organize this conference in his country is still welcome to contact with members of this committee (Pat Barkley: pat.barkley@bigpond.com; Josy Bové: joseph.bove@wanadoo.fr ; Steve Garnsey: sgarnsey@worldnet.att.net ; Luis Navarro: lnavarro@ivia.es ; John da Graça: jdagraca@ag.tamu.edu ; or myself: pmoreno@ivia.es) and present a formal offer with a preliminary program of activities.
- 3) As indicated in previous newsletters, the business meeting at each conference is the only opportunity to grant the honour of IOCV Fellow to prominent members who have contributed significantly to growth, functions or activities of IOCV including service to the organization, sustained scientific contributions, etc. Nominations should be sent to the Chairman. The nomination of candidates may be supported by more than one person to foster participation of more people in the process of selection . According to the IOCV By-Laws, proposals have to be examined and approved by the Board of Directors before being voted on at the general assembly.

I hope to see most of you in Texas and/or México!

Pedro Moreno
IVIA Cra. Moncada-Náquera Km. 4.5
46113-MONCADA, VALENCIA, SPAIN
Fax 34-963424001

The International Organization of Citrus Virologists (IOCV)

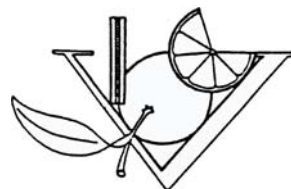
IOCV promotes cooperative international studies of graft transmissible disease of citrus. International research cooperation is essential to more rapidly characterize the properties of the causal agents, to identify their means of spread and to develop diagnostic techniques for their identification. The ultimate objective is the prevention, control, management or elimination of these diseases to minimize crop loss.

IOCV promotes exchange of information among scientists by sponsorship of workshops and international conferences and by publishing the proceedings of these conferences. It prepares useful materials for the study of graft transmissible disease of citrus and distributes a periodic newsletter.

IOCV encourages personal contacts and growth in relationships among members through international meetings and visits. It promotes mutual understanding among individuals, institutions and agencies concerned with citrus culture.

IOCV encourages the development of international programs for solving problems caused by citrus virus and virus-like diseases which affect different countries and identifies problems which need research support. IOCV members participate actively in many international citrus research programs.

IOCV in cooperation with the Food and Agriculture Organization of the United Nations (FAO) supports a website where various virus and virus-like diseases of citrus are presented in slide shows. This may be accessed by <<http://citrus.ecoport.org>> or <<http://ecoport.org>> (press 'resources' and then press 'slide shows'). Over 45 various citrus diseases are now available as slide shows for study or downloading.



Citrus Sudden Death: in retrospect.

J.M. Bove

When, in 1999, a new disease, now called Citrus Sudden Death (CSD), started to kill sweet orange trees grafted on Rangpur lime in the Triangulo Mineiro, the problem was not at first taken too seriously, since this southwestern region of Minas Gerais was considered as marginal for citrus. Soon however, the disease was seen spreading and entering the Northern part of São Paulo State. And, more important, similarities between CSD and Tristeza Quick Decline (TQD) became rapidly apparent, and reminded the Paulista citrus farmers of the devastating effects of TQD.

Indeed, TQD, caused by *Citrus Tristeza Virus (CTV)*, was well known in Brasil, where 9 of 11 million trees grafted on sour orange succumbed to the disease in the 1940s and 1950s. When TQD first appeared in Argentina in 1930, nothing was known about the disease. Many years of research, in the frame of an international cooperation effort, were necessary to understand the disease before it could be controlled. These efforts led to the demonstration that TQD was graft-transmissible, caused by a virus, and transmitted in nature by a very efficient insect-vector, the aphid *Toxoptera citricida*. The mechanism of phytopathogenicity became understood, and it was eventually established that TQD was a bud union disease in which the sour orange rootstock-bark was affected. From there on, control of the disease became obvious, and consisted in replacing sour orange by rootstocks giving tolerant combinations with sweet orange and other citrus species. In this way, the Paulista citrus industry could be rescued, and has become one of the largest in the world, but it took 50 years to do so. Among the new rootstocks used to replace sour orange, Rangpur lime became the most popular one, because it is drought-resistant, and by the year 2000, 85% of the 200 million sweet orange trees in the Paulista citrus belt were grafted on this rootstock.

Realizing that the new disease, CSD, was a menace for 85% of the Paulista sweet orange trees, that the disease was spreading across the Minas Gerais border into São Paulo State and destroying thousands of trees, it became clear that the problem had to be taken seriously, especially since it seemed to be tristeza-like. Could a tristeza-like disaster be avoided? In particular, was it possible, within the CSD-affected region, to save trees on Rangpur lime not yet affected by CSD, or even recover trees already affected by it? The answers to these questions depended on understanding the nature of the disease. Was it really a tristeza-like bud union disease or was it due to abiotic factors? Several lines of research have provided the answer: (i) comparison of symptoms of CSD with those of TQD, (ii) epidemiology or how CSD spreads in time and in space, (iii) graft-transmission assays, (iv) pathological anatomy of the Rangpur lime bark at the bud-union of CSD-affected trees, and (v) inarching experiments.

1) Symptoms of CSD in the affected region of Brasil were found to be very similar to those of TQD as seen in Florida in 2002 (Roman et al., 2004). In particular, in both diseases, fruits and leaves remain attached to the trees when sudden death occurs. However, the yellow discoloration, so characteristic of Rangpur lime bark from CSD-affected trees, does not occur in the sour orange bark from TQD-affected trees.

2) Extensive surveys carried out by Fundecitrus showed that CSD spreads in time and space in a manner strikingly similar to the spread of *CTV*, under conditions where the aphid *Toxoptera citricida* is the vector (Bassanezi et al., 2003). These results strongly suggested that CSD had an aerial vector such as *T. citricida*, and that the causal agent was biotic.

3) Transmission of the causal agent of CSD by graft-inoculation was successfully achieved by Fundecitrus (Yamamoto et al., 2003, Yamamoto, unpublished data). As is well known, graft transmitted agents are viroids, viruses and endogenous (phloem- and xylem-restricted) bacteria. Search for endogenous, as well as exogenous, bacteria, has produced negative results (Bassanezi et al.,

2003), and no viroids were detected in CSD-affected trees (Roman et al., 2004). Thus, the causal agent of CSD had to be a virus.

Positive graft-transmissions of the CSD agent were obtained not only with budwood-inoculum taken on 14-year-old CSD-affected trees (grafted on Rangpur lime), but also with budwood-inoculum taken on 22-year-old asymptomatic trees (grafted on Cleopatra mandarin). Both inoculum-donor trees were from the same farm, indicating that the causal agent of CSD was widespread and present not only in CSD-affected trees, but also in asymptomatic trees. The fact that symptomless trees on Cleopatra mandarin carried the CSD agent showed that trees on Cleopatra mandarin were tolerant to CSD. Indeed, in the CSD-affected region, trees on Cleopatra mandarin have never shown symptoms of CSD. The same is true for trees on Sunki mandarin, Swingle citrumelo and *Poncirus trifoliata*. However, 5- to 7-years-old trees on Volkamer lemon with typical symptoms of CSD, including the characteristic yellow discoloration in the bark, have been detected in 2003. With Volkamer lemon, progress and severity of the disease seem to be less intense than with Rangpur lime, but further observations are required to confirm these observations.

4) It was shown long ago that the sour orange bark below the bud union of TQD-affected trees shows characteristic symptoms. The functioning phloem (FP) is greatly reduced, and is characterized by necrosis, collapse and obliteration of sieve tubes and companion cells, as well as by the presence of chromatic parenchyma cells. There is an excessive amount of non-functioning phloem with conspicuous necrotic areas. Medullar rays are hypertrophic and hyperplastic. Very similar anatomical alterations were seen in Rangpur lime and Volkamer lemon bark below the bud union of CSD-affected trees (Ramon et al., 2004). However, in CSD the amount of FP was not as drastically reduced as in TQD. This is probably the reason why trees on Rangpur lime show symptoms of CSD only after about two years in the field, while trees on sour orange begin to decline after about 6 months. This observation was important to understand the success of inarching in the case of CSD, but not TQD.

5) Inarching consists of (i) planting one or two citrus rootstock seedlings next to a grafted tree, and (ii) approach-grafting them onto the tree-scion, above the bud union line. Many CSD-affected trees have been inarched in this way with various citrus rootstock seedlings. If CSD is a bud union disease, affected trees should show recovery when inarched with seedlings such as Cleopatra and Sunki mandarins or Swingle citrumelo, but they should not recover when inarched with Rangpur lime seedlings. This is precisely what has been observed.

The results from the observations and experiments reported above clearly confirmed that, as initially thought, CSD was a graft-transmissible, tristeza-like, bud union disease of viral nature (Roman et al., 2004). This is why it has been possible to control CSD by using rootstocks such as Cleopatra and Sunki mandarins, as well as Swingle citrumelo, in place of Rangpur lime. Indeed, as early as 2002, in CSD-affected blocks, severely affected trees have been pulled out and replaced by trees grafted on the above rootstocks. Such trees have also been used to plant entirely new blocks.

Inarching with the above rootstock seedlings has given exceptionally good results. Close to 2 million trees have been inarched since 2002. Inarching serves two purposes: recovery of CSD-affected trees, and preventing CSD symptoms to develop. CSD-affected trees up to 10-years-old could be recovered when inarched with two seedlings. Pruning of the trees before inarching adjusts the canopy size to the deteriorated and reduced root system, extends the life of the trees by one or two years, and gives the farmers more time to carry out the inarching. However, pruning can also be done immediately after inarching.

Young trees begin to show mild CSD symptoms only after having been in the field for at least two years. Therefore, enough

time is available to inarch young trees, and one inarched seedling is enough to prevent CSD. In the case of tristeza, young trees show severe symptoms much earlier, and this is probably the reason why inarching could not be developed as a method to control tristeza. Never before CSD has inarching been used so widely. Interestingly, it has been observed that with inarched trees, the initial Rangpur lime rootstock does not die, and continues to provide mechanical support to the trees. The rootstock seedlings used to inarch the trees on Rangpur lime are not as drought resistant as the initial Rangpur lime rootstock. However, as inarching keeps the Rangpur lime rootstock alive, inarched trees might show some drought-resistance. This possibility should be confirmed.

The epidemiology studies have shown that CSD spreads very much like CTV, and that aphids such as *T. citricida* could be responsible for this spread. Hence, it was to be expected that CSD would continue to increase within the affected regions, and invade further regions of the Paulista citrus belt, not yet affected. This is precisely what the surveys, carried out by Fundecitrus in 2002 (June to September) and 2003 (September to December), have shown. In São Paulo State, the disease was first restricted to the northern region, but has now progressed 60 km to the West as well as to the South within one year, and important citrus counties in the Northwest and the Center of State are now infected. The number of trees that are affected or have died in Minas Gerais and São Paulo States has been calculated to be over 2 million. In the years to come, the rate with which the disease will progress depends on many factors: soil and weather conditions, number of inarched and tolerant trees, density of citrus orchards, movement of infected plant material out of the affected regions, etc. Therefore, it is essential that further surveys for CSD be carried out each year so as to outline the borders of the affected regions. This knowledge makes it possible to define areas of short-term risk, where inarching and/or planting tolerant trees should be carried out immediately, areas of medium-term risk, long-term risk...

At this time, the causal agent of CSD is not yet known. All CSD-affected trees are infected with CTV as well as with a CSD-associated virus (CSDaV), detected by Alellyx Applied Genomics in 2003. CSDaV is a member of the *Tymoviridae* family of viruses. As mentioned above, the epidemiology studies (Bassanezi et al., 2003) have indicated that CSD is very probably spread by an aphid vector such as *Toxoptera citricida*. Therefore, as expected, Alellyx was able to detect CSDaV in three aphid species known to be CTV-vectors: *T. citricida*, *Aphis gossypii*, and *Aphis spiraecola*. CSDaV is very probably transmitted by these aphids, in spite of the fact that no *Tymoviridae* virus is known to be aphid-transmitted. This suggests that CSDaV might be cotransmitted with CTV, needing CTV as a helper virus. In collaboration with Fundecitrus, Alellyx has also shown that CSDaV is present in citrus plants graft-inoculated with budwood-inoculum from CSD-affected trees as well as from tolerant trees (on Cleopatra mandarin) and carrying the CSD agent. This demonstrates that CSDaV is graft-transmissible, and is present not only in symptomatic trees (on Rangpur lime) but also in symptomless trees (on rootstocks such as Cleopatra mandarin). However, none of these interesting results proves that CSDaV is the causal agent of CSD. Further research efforts are necessary to identify CSDaV, CTV, or the two viruses together, as the cause of CSD.

Today, after less than four years of intensive work and good hypotheses inspired by tristeza, ways to efficiently control CSD have been developed for the short term (inarching) and the long term (tolerant trees). It is now unlikely that CSD will wipe out the Paulista citrus industry as did tristeza quick decline some fifty years ago. However, by losing Rangpur lime and eventually Volkamer lemon, as drought resistant rootstocks, the industry might be forced to turn to irrigation, and this might be the major, if not the most beneficial consequence of CSD on the long term. Continued efforts remain indispensable, and with strong research,

the Paulista citrus industry will become even stronger.

References

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The work described above would not have been possible without the invaluable contributions of the members of our team, which deserve the greatest gratitude:

E. Alves, A.J. Ayres, R.B. Bassanezi, M. Cambra, N. Duran-Vila, N. Gimenes-Fernandes, L.F. Girotto, W.C. Jesus Junior, J. Juarez, E.W. Kitajima, P. Moreno, F. Rabenstein, M.P. Roman, F.A.O. Tanaka, D.C. Teixeira, and P.T. Yamamoto.

From : Hennie le Roux - South Africa

There has been some changes in the South African citrus industry. Dr. Fanie van Vuuren who used to be with the ITSC in Nelspruit retired from the ITSC but has accepted a contract with CRI to continue with the research on graft transmissible diseases. In the meantime dr Gerhard Pietersen who worked for the ARC in Pretoria for more than twenty years was appointed as a virologist by the CRI. He will be placed at the University of Pretoria and will be attending the IOCV later this year. Gerhard has been working on viruses in many crops but this will be his first experience with citrus. We are looking forward to get him involved and hope that Fanie will transfer his knowledge to Gerhard before he finally retires in a couple of years.

From Ari Salibe - Brazil

To the IOCV newsletter - I am well after my heart Surgery. Diseases in citrus orchards in Sao Paulo are very bad. Over 2 million trees affected by Sudden Death Disease and it is spreading. Recently, a new disease appeared causing much concern. It has tentatively just been identified as greening disease (Huanglungbing). Locally being called "Amarelão ". *Diaphorina citri* exists here in high population. May God help us.

From Y. S. Ahlawat - India

The work on developing diagnostics for detection of citrus viruses have been strengthened and we have developed effective PCR systems for diagnosis of CTV, ICRSV and CYMV and also citrus greening bacterium. We also developed cost effective technology of multiplex PCR to detect CYMV and greening simultaneously.

The most important development was that the Advanced Centre for plant Virology, IARI, New Delhi has been recognised as a National Centre as Inspection Authority for tissue culture raised plants by the Govt. of India through Gazette notification. This will help to avoid introduction of undesirable viral infectious through TC plants in the country.

**IX International Virus Epidemiology
Symposium in Lima, Peru**

Dear Colleagues:

The Plant Virus Epidemiology Committee of the International Society for Plant Pathology will hold its IX International Virus Epidemiology Symposium in Lima, Peru on April 4-7, 2005. The theme of the meeting is "Applying Epidemiological Research to Improve Virus Disease Management". As on previous occasions the main objective of this Symposium is to provide a forum for presentations and discussions on recent developments in the areas of plant virus epidemiology and virus management.

Peru - located in South America - is one of the most popular destinations in the world due to its rich cultural heritage, which include Pre-Columbian agricultural societies that initiated the domestication of crops, such as potatoes, chilies, and maize over 5,000 years ago.

Please let us know as soon as possible if you plan to attend the Symposium and the tentative title of your paper, if you plan to make a presentation, so that we can finish shaping the scientific program for the Symposium. The formal pre-registration deadline is October 1, 2004. Abstracts for the IPVE meetings must be submitted by October 15, 2004.

For information on the Symposium and pre-registration, please visit us at: <http://cipotato.org/training/PlantVirusEpidemSymp05/>

We look forward to your participation in the Symposium. Please do not hesitate to direct any questions you may have to our e-mail address: plant-virus-epidemiology-symp@cgiar.org

Sincerely,
Pamela Anderson
Chair, Organizing Committee

International Plant Virus Epidemiology Symposium 2005
c/o International Potato Center (CIP)
Apartado 1558, Lima 12, PERU
' (51) (1) 349-6017 Extension 2063
* plant-virus-epidemiology-symp@cgiar.org
Fax: (51) (1) 317-5326
<http://cipotato.org/training/PlantVirusEpidemSymp05/>

**MEMBERSHIP APPLICATION
IN THE
INTERNATIONAL ORGANIZATION OF CITRUS
VIROLOGISTS**

The International Organization of Citrus Virologists (IOCV) is an independent, non-profit association for the promotion of excellence and advancement of research with virus and virus-like diseases of citrus. Membership is open to anyone who is interested in the exchange of information on diseases of citrus.

A membership fee of \$30.00 US, payable to IOCV is required for the period between the 16th and 17th conference of the IOCV (for the three year period 2004-2007) . Student fee is \$15.00.

NAME _____
ADDRESS _____
TELEPHONE _____
FAX _____
E-MAIL _____

Payments can be made by VISA (see below) or by International money order or International draft payable to: **INTERNATIONAL ORGANIZATION OF CITRUS VIROLOGISTS -**

(Payments can also be made by checks on US banks only)
MAIL \$30.00 US. or Student \$15.00

CREDIT CARD PAYMENT

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MAIL TO:

Chester N. Roistacher, Secretary, IOCV
Dept. Plant Pathology, University of California
Riverside, CA 92521-0122 USA

For E-mail processing, please contact C. Roistacher
chetroist@charter.net for correct procedure for using e-mail to make credit card payment.

16th CONFERENCE IOCV

DATES:

Pre-Conference Tour - November 03-06, 2004
Lower Rio Grande Valley, Texas. USA

Conference - November 7-13, 2004
Monterrey, Mexico

Post-Conference Tour - November 14-17, 2004
Martínez de la Torre, Veracruz, México

DEADLINES:

August 15, 2004	Submission of abstracts
September 15, 2004	Last day for early Conference registration.
October 15, 2004	Last day for pre- and post conference registration
November 7-13, during the Conference	Submission of full papers

YOUR CONTACTS ARE:

Pedro Moreno - Chairman IOCV
E-mail: pmoreno@ivia.es

John daGraça - Chairman pre-conference tour
E-mail: dagraca@tamu.edu

Mario A. Rocha-Peña
Chairman of the IOCV Conference Organizing Committee
E-mail: mrocha@fcb.uanl.mx or rocha.mario@inifap.gob.mx

Sergio A. Curti-Díaz
Chairman of the Post -Conference Organizing Committee
E-mail: sacurti@prodigy.net.mx or curti.sergio@inifap.gob.mx

Chet Roistacher - Sect/Treas IOCV
E-mail: chetroist@charter.net

PRE CONFERENCE

Wednesday, November 3rd
Arrival and transfer to Hotel in Weslaco
Evening: Reception at Palm Aire Best Western

PLEASE FOLLOW THE STYLE OF THE 15TH PROCEEDINGS
WHEN PREPARING MANUSCRIPTS

Thursday, November 4th

Morning : Visit Texas A & M University-Kingsville
Citrus Center. Presentations on the Texas citrus industry
and citrus research programs
Afternoon : Tour Center Research Farm and Texas
Agricultural Experiment Station
Evening : Dinner on South Padre Island

Friday, November 5th

Tour of Valley citrus – groves, packingshed,
Diaprepes quarantine zone, juice plant, nursery. Also visit
USDA-APHIS-PPQ facility at Moore Base (beneficial insect
rearing). An alternative program for accompanying persons
is being planned. Evening: Dinner at Mani Skaria's.

Saturday, November 6th

Depart for Monterrey by luxury bus. Stop at the
Centro de Biotecnología Genómica. Reynosa, Tamaulipas,
México.

ESTIMATED COSTS FOR PRE CONFERENCE:

Registration: \$125 covers reception, lunches,
dinner, bus
Hotel: \$55-60 per night (room rate-can sleep 2);
includes breakfast and Bus to Monterrey Mexico:

ACCOMODATIONS:

Best Western Palm Aire Hotel & Suites
Tel. 1-956-969-2411 or 1-800-359-5672
Fax 1-956-969-2211

A block of rooms have been reserved until October
20; bookings made after this date will depend on availability.
Please mention "IOCV" when you book.

ATTENDANCE AND DEADLINE:

Minimum and maximum attendance will be 25 and
50 IOCV delegates, respectively. October 15 is the deadline
for pre-conference registration

IOCV CONFERENCE IN MONTERREY, MEXICO

Sunday, November 7th
Conference registration.

Monday, November 8th
08:00 - 09:00 Registration - continued
09:00 - 10:30 Opening Ceremony
10:30 - 11:30 Invited presentation 1
11:30 - 12:00 Coffee break
12:00 - 13:30 Conference Session I
13:30 - 15:00 Lunch break
15:00 - 17:00 Conference Session II
16:30 - 17:00 Coffee break
17:00 - 19:00 Poster Session I
19:00 - 20:00 Social activity
20:00 - 22:00 Dinner

Tuesday, November 9th

9:00 - 11:00 Conference Session III
11:00 - 11:30 Coffee break
11:30 - 13:30 Conference Session IV
13:30 - 15:00 Lunch break
15:00 - 16:00 Conference Session V
16:00 - 16:30 Coffee break
16:30 - 18:00 Poster Session II
19:00 - 20:00 Social activity
20:00 - 22:00 Dinner

Wednesday, November 10th

Visit to Montemorelos, and General Terán citrus
area. Visit to the Citrus Experiment Station of INIFAP at
General Terán.

Meal at the INIFAP Citrus Experiment Station
Return to Monterrey
Stop at Los Cavazos, Nuevo León to visit handcraft shops

Thursday, November 11th

08:00 - 10:00 Business meeting of IOCV
10:00 - 11:30 Conference Session VI
11:30 - 12:00 Coffee break
12:00 - 13:30 Conference Session VII
13:30 - 15:00 Lunch break
15:00 - 16:30 Conference Session VIII
16:30 - 17:00 Coffee break
17:00 - 19:00 Poster Session III
20:00 - 22:00 Dinner

Friday, November 12th

8:00 - 10:30 Conference Session IX
10:30 - 11:00 Coffee break
11:00 - 11:30 Conference Session X
11:30 - 12:00 Coffee break
12:00 - 13:30 Conference Session XI
13:30 - 15:00 Lunch break
15:00 - 16:30 Conference Session XII
16:30 - 17:00 Coffee break
17:00 - 18:30 Conference Session XIII
18:30 - 20:00 Free time
20:00 - 22:00 Closing meeting and Farewell Dinner

For specific details on the Program for
Accompanying persons; the scientific programs; Author
instructions and abstract format please See Program sent to
you via E-mail or that mailed to you. If you have not
received a program please contact Mario Rocha Peña : :
mrocha@fcb.uanl.mx or rocha.mario@inifap.gob.mx

REGISTRATION

Registration fees for Conference participants
include participation in scientific sessions, Book of
Abstracts and Program, the XVI IOCV Conference
Proceedings, coffee breaks, one lunch at the Wednesday
field tour, and transportation during the Conference. Fees
for accompanying persons include the Opening Ceremony
coffee break, one lunch, the Wednesday field tour and four
other tours by bus.

Payment must be in US\$ using a credit card or Bank
transfer. The registration fees are as follows:

Evening : reception cocktail at Hotel Casa Blanca

Registration Fees	Before Sept 15	After Sept 15th
IOCV members	\$270	\$300
IOCV non-members	300	330
Students	100	120
Accompanying person	125	150

(For student fees, cancellation procedures Hotel accommodations in Monterey, Visa arrangements, arrivals, currency exchange, letter of invitation etc. please refer to your printed announcement)

ACCOMMODATIONS - MONTERREY

The Hotel Fiesta Americana is the official venue of the Conference. The Fiesta Americana is a five star Hotel located in downtown in the heart of Monterrey. As the Conference does not have an official Travel Agency, all participants are encouraged to make their own reservations directly to the Hotel. When making the Hotel reservation, be sure to advise them with the reservation code number IOCV Conference in order to benefit from special rates. There are 50 rooms booked for IOCV participants, and all reservations should be confirmed before October the 07th. After that deadline the rooms will be confirmed on a "first-come-first-served" basis and will depend upon room availability. As Monterrey will be venue of several international and national events in November 2004, the IOCV participants are encouraged to make the Hotel reservation before October 07..

Fiesta Americana Centro Monterrey
Corregidora 519 Oriente Zona Centro
Monterrey, Nuevo León 64000. México
Tel. Outside México - - 52 (81) 83190900;
inside México 01 (81) 83190900
Fax Outside México - - 52 (81) 83190980;
inside México 01 (81) 83190980

Online reservations: www.fiestaamericana.com

Single room US \$90.00 plus 17% taxes
Double room US \$102.00 plus 17% taxes

The hotel reservation includes: lodging and complete breakfast buffet

CLIMATE -MONTERREY

In November the weather in Monterrey is usually pleasant and comfortable with warm days with 24-28 °C and cool night ranging between 18 and 22°C. Showers are not common in this part of the year. We recommend that you carry a light jacket with you.

POST CONFERENCE TRIP

Martínez de la Torre, Veracruz. México November 13-17

PROGRAM

Saturday, November 13th

Arrival at Veracruz Airport and ground travel to Hotel at Martínez de la Torre by luxury bus (four hours driving). Lunch while in route at Nautla.

Afternoon: Visit at INIFAP Citrus Experiment Station. Presentations on the Veracruz citrus industry and citrus research programs.

Sunday, November 14th

Tour to "El Tajín" archeological zone, pre-hispanic center of Totonaca's culture

Lunch at archeological zone

Afternoon: Return to hotel at Martínez de la Torre

Monday, November 15

Tour through citrus groves to sigh-seeing miscellaneous citrus diseases - Lunch and dinner at Martínez de la Torre

Tuesday, November 16

Morning: Visit at the Integrated Citrus Budwood Foundation Unit (Germplasm and foundation block, increase block, rootstock seed block, and nursery)

Afternoon: Visit to Tahiti lime packinghouses and citrus juice processing houses

Evening: Farewell cocktail at Hotel Casa Blanca

Wednesday, November 17

Morning: Depart for Veracruz by luxury bus

ESTIMATED COSTS:

Registration: US \$200 – covers: A) pick up at Veracruz Airport, transportation by luxury bus throughout the four days, including transfer Veracruz city-Martínez de la Torre round trip. B) Lunch and reception cocktail, November 13. Breakfast, lunch, and dinner November 14-15. C) Breakfast, lunch, and farewell cocktail, November 16; and D) Breakfast on the November 17. E) Tour visit to "El Tajín" archeological zone.

LODGING:

Hotel: \$45-50 per night (single or double room, respectively) A block of rooms at Martínez de la Torre hotels has been reserved until October 20; bookings made after this date will depend on availability. Please mention "IOCV" when you book.

Hotel Casa Blanca, - - 52 (232) 324-3120
araíso Vic - - 52 (232) 324-3193; - - 52 (232) 324-3972

If you cannot contact the hotel directly, you can also book by email via Sergio A. Curti-Díaz (curti.sergio@inifap.gob.mx) – send him personal and credit card details.

ATTENDANCE AND DEADLINE:

Minimum and maximum attendance will be 25 and 50 IOCV delegates, respectively. October 15 is the deadline for Post-Conference registration

FLIGHTS:

There is one daily flight Monterrey-Veracruz served by Aerocaribe (Mexicana de Aviación). November 13, Monterrey-Veracruz is at 7:40am and arrives at 9:10am. November 17, Veracruz-Monterrey is at 15:35 and arrives at 17:05. The fare round trip is approximately US \$370.

Post-Conference participants are encouraged to make their own flight reservations.

FOR REGISTRATION AND PAYMENTS - SEE THE FORMS SENT TO YOU IN THE SECOND ANNOUNCEMENT FOR THE CONFERENCE.

If you did not receive the 2nd announcement my e-mail - please visit the following website: www.inifap.gob.mx/eventos and click on IOCV

Bebeduro, Brazil

Eduardo Stuchi, Researcher Embrapa Cassava & Fruits and Scientific Director of EECB.

The EECB staff is involved in research on improvement of citrus (selection of scion and rootstocks), grove planning and planting systems (spacing and dwarfing), cultural practices (irrigation and pruning), diseases, others fruit crops, researches for private companies and special projects. There are currently 51 field experiments with citrus. The citrus variegated chlorosis (CVC) is one of the most important diseases to the Brazilian citrus industry as you know. With our objective of finding resistant cultivars we evaluated the reaction to CVC of 256 sweet orange selections from the citrus germplasm bank at Centro APTA Citros "Sylvio Moreira" - IAC in Cordeirópolis and 80 apparently healthy clones (escapes) selected from infected groves. Selected cultivars are now under a second screening. This work is a partnership among Centro APTA Citros "Sylvio Moreira", Fundecitrus and EECB and its results will be probably be presented at the next IOCV conference.

In another effort we are evaluating the reaction to CVC of 164 genotypes (86 oranges, 56 mandarins and 22 hybrids) introduced from Argentina, France, Italy, Portugal and Spain. The results of the last work will be presented in the next IOCV conference. This year, in a new cooperative work, we planted more than 300 hybrids of sweet oranges by mandarins which were obtained at the Centro APTA Citros "Sylvio Moreira" - IAC breeding program with the objective of finding CVC resistant cultivars.

Citrus sudden death disease is a new disease roughly similar to tristeza quick decline that affects mainly trees of sweet orange on 'Rangpur' lime rootstock, (see the Ecoport slide show by Machado and Muller). Our objective is to identify tolerant rootstocks. We are currently preparing nursery trees of 16 rootstocks, nine hybrids produced by Dr. Donadio, five trifoliolate hybrids obtained by Dr. Furr and two selections of 'Sunki' mandarin ('Tropical' and 'Maravilha') released by Embrapa Cassava and Fruits. Hybrids of the Embrapa Cassava breeding program will also be evaluated. Around 50 mandarins and mandarin hybrids introduced by the EECB will be evaluated after polyembryony rate determination.

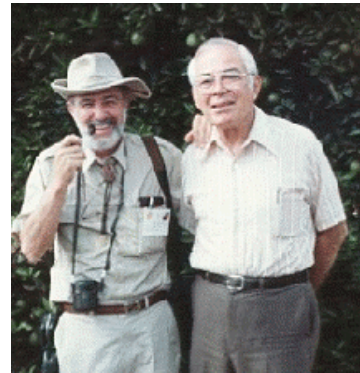
The use of citrus viroids (CVds) as dwarfing agents for high-density plantings has been considered in some citrus growing regions of the world. Aiming to define the limits of this practice in the north of São Paulo State, we have conducted some experiments using CVds. An early study determined the viroid content of five exocortis isolates and its inoculations effects on tree size, fruit quality and yield of 'Marsh Seedless' grapefruit grafted on trifoliolate orange. Conclusive results (10 harvests) data will be presented in the next IOCV conference. In a new experiment, we are studying the effect of the inoculation of two characterized isolates in 'Tahiti' acid lime on six rootstocks. Preliminary results will be showed at the next IOCV conference. We are evaluating the effects of five isolates (the two cited and three others selected on commercial groves) in the yield, growth and fruit quality of 'Tahiti' lime in three regions of production. In the same area of study, we have conducted a survey to select mother tree candidates and to determine the viroids present in the "Quebra-galho" clone of 'Tahiti' acid lime and determine the relationship between viroid content and its effects on trees that are not well characterized in our conditions. We observe a great variation on morphology among trees in the same grove that will be presented as a short communication at next IOCV conference. The last work is supported by Embrapa - Prodetab. The works with viroids are being developed by a group that includes researchers from at Centro APTA Citros "Sylvio Moreira" - IAC.

I would like to invite everyone to visit our Experimental Station. It will be my pleasure to spend some time with you and

discuss the works that we've been developing.

CONTRIBUTIONS TO THE CITRUS INDUSTRY MORTIMER COHEN: IN MEMORIAM 1916-2004

By: Robin Koestoyo and Bob Pelosi



(Mort Cohen with Chet Roistacher in Florida - 1989)

The mid-1950s mark the Florida citrus industry's ascent - an era that would bring growth and profitability for many years. But, the flourishing industry was not without its problems. Viruses such as tristeza, psorosis, xyloporosis, and exocortis, and the fungal diseases, greasy spot and melanose, reduced production and/or caused elimination of fruit from fresh sale for growers statewide. Citrus blight also caused severe economic losses that continue today.

In 1956, Mortimer Cohen arrived in citrus country. He had earned a Doctorate in Plant Pathology at the University of Minnesota in 1951, and had served one year as a plant pathologist with the Bureau of Plant Pathology for the State of California and for four years with the Florida State Plant Board. His new position would be as a professor of plant pathology for the University of Florida's then-Indian River Field Laboratory in Fort Pierce. Cohen was the very first plant pathologist to serve the University in the Indian River District. A tenacious researcher known for his strict application and methodical practice of the scientific method, Cohen was also a keen listener. His considerations for growers' needs and his desire to serve those needs earned him the respect of thousands of citrus growers all over Florida and in other parts of the world where citrus is an important crop.

"He was one of the greatest well-rounded plant pathologists in citrus and perhaps all other crops. He knew fungi, viruses, bacteria, mycoplasmas, entomology, soil science, and a host of post-harvest maladies. He was also an excellent horticulturalist," said David Calvert, a colleague of Cohen's and a former director of the UF Institute of Food and Agricultural Sciences (UF/IFAS) Indian River Research and Education Center, where Cohen worked for 28 years.

"Whenever you had a problem with your citrus you could take it to 'Mort' and he would solve it," said Jim Piowaty, a longtime St. Lucie County citrus grower who started operations in 1962. "Mort took his job very seriously and he liked to solve problems. He was well-liked and many depended on him for help."

"Dr. Cohen solved the riddle of proper spray timing to control greasy spot and melanose on citrus leaves and fruit," said Paul Driscoll, another longtime St. Lucie County citrus grower.

Cohen made so many advances that it is hard to pinpoint

a single greatest career achievement. Few are aware of his contributions to the Budwood Program. He developed virus-free budwood selections for several varieties including Ruby Red grapefruit, and both Navel and Hamlin sweet oranges.

"Cohen's nucellar red grapefruit mother trees have had more than 6 million propagations, and over 1 million navel trees have been propagated from his two navel selections, most of which are probably still producing fruit all over the state of Florida," said Bob Pelosi, a now-retired senior biological scientist who served Cohen's research programs during the 60s and 70s.

Most of the mother, or nucellar trees, still stand in the UF/IFAS citrus variety collection within the Citrus Research Grove in Fort Pierce. The six tree rows include about 150 varieties providing today's researchers with a varieties repository for experiments. The trees are also used to educate new agriculturalists, including canker inspectors, about the citrus family's many varieties. Blue tags engraved with the names of the varieties are attached to each tree. It's an enchanted two-acre area of the UF Citrus Research Grove, where one is able to locate a Buddha's hand citron, a pink lemon or a Pandan Wangi pummelo.

Cohen evaluated the growth, productivity and fruit quality of 33 different selections of 'Valencia' oranges on 'Rough Lemon' rootstock.

"He was very interested in rootstocks and his goal was to find a substitute for sour orange rootstock, which is susceptible to citrus tristeza virus, and he conducted more than 25 field experiments with citrus rootstocks," said Calvert.

According to Pelosi, most growers feel that Cohen's greatest achievement was developing virus-free budwood. While Calvert indicates that many researchers would point to Cohen's development of a method to diagnose citrus blight, a disease that has plagued the industry since its inception in the mid to late 1800s. Citrus blight, or young tree decline, has been the subject of many scientific studies for more than 100 years. And today, citrus blight still claims the lives of more than 2 million citrus trees annually.

"Citrus blight has always been the number one killer of citrus trees," said Pelosi. "Dr. Cohen was experimenting with injecting antibiotics into blight trees. When he realized the xylem system inside trees with citrus blight was blocked and could not absorb the injections, he refined the technique and with a lot of testing it became the most reliable test for blight. The technique continues to be used worldwide."

"Dr. Cohen's method of using water injection to diagnose citrus blight was the first breakthrough with citrus blight—a major key to the puzzle of the disease," said Pelosi.

"He was also instrumental in maintaining the dignity of the name of the disease," said Cohen's former colleague Chester Roistacher. "Growers and some researchers believed there were a few diseases with similar symptoms but Mortimer insisted it was the same disease."

According to Lillian Cohen, who was married to Mortimer Cohen for 61 years, his accomplishments in community service were also great. Together Mortimer and Lillian served the Fort Pierce community as members of the St. Lucie County Library Board and the local Civil Rights Association's Bi-racial Committee. Mortimer was president of Temple Bethel in Fort Pierce.

"Those years were very exciting times. They were the happiest times of my life and I owe it all to my husband," said Lillian Cohen.

In 1984, Mortimer Cohen retired from his accomplished career. He lived in Miami along with his wife Lillian until his death on Monday, April 12, 2004.

"Dr. Cohen's contributions to the citrus industry helped grow healthier trees and to minimize the affects and presence of plant disease," said Pelosi. "He wanted so much to solve the citrus blight problem. And he did solve one mystery of the disease—a method to diagnose it."

In a eulogy Pelosi delivered at Cohen's funeral last week, he said, "He once told me, I would consider my life a waste if I didn't leave the world a better place to live in...I certainly believe it's a better place because of his contributions."