

Highlights

- The Latest Publications from APS Press
- Things you didn't know

Highlights

- Faculty, staff, and students
- From the Field : Blue Mold of Tobacco



PLP News

*The Newsletter of
the Plant Pathology
Department
Volume 3 • Issue 6
June 1999*

Some Reasons for International Travel and a Report on the 7th Plant Virus Epidemiology Symposium, Almirea, Spain, April 11-16, 1999

By Dr. Charles Niblett



You sure travel a lot; Do you still work here?; Are they still paying you? and other curious and semi-joking questions are often directed at me by various members of the department when they see me after a trip. It is always an enigma to me, and I try to smile and explain why I have been traveling. So let me explain a bit here and report on a recent international meeting. Each year the State of Florida provides my salary, that of a Senior Biological Scientist, about \$1000 of operating funds and space, equipment and utilities with which to do our research. All of the rest of the research in our program is funded by grants from state, federal and private agencies, and all of my travel is funded by those grants. When I resigned as Chairman in 1986, it was agreed that I would do research on the molecular aspects of citrus viruses in Florida. To prepare for this I went on year-long sabbaticals to Roger Beachy's lab, then at Washington University, St. Louis, MO and later to Pedro Moreno's at Instituto Valenciano de Investigaciones Agrarias (IVIA) in Valencia, Spain.

Citrus is a semi-tropical crop grown throughout the world, and it is propagated by grafting. Therefore, many of its diseases are passed from one generation to the next, and also from one country to the next in the absence of strict and enforced phytosanitary and quarantine measures. Because of its threat to Florida and the region, we have concentrated most of our research on citrus tristeza virus (CTV). This has intensified recently because of the establishment of its most efficient vector *Toxoptera citricida*, the brown citrus **aphid**, and the finding of stem pitting strains of CTV in Florida.



This also influences the graduate education and training components of our program. You may have noticed that often I am the only American citizen in our program. The graduate students, post-docs and visiting scientists generally come from citrus producing countries including Belize, Brazil, Chile, Colombia, Cuba, India, Mexico, Morocco, New Zealand, Portugal, the Philippines, South Africa, Turkey and Venezuela, and many of them provide their own assistantships or other funding, indicative of the impor-

tance of citrus and CTV in many of their countries.

I also travel internationally to do research with colleagues in other countries, to serve as a consultant to FAO, the World Bank, USDA and the individual countries, as well as to organize and attend international meetings and symposia. There is an unwritten law about travel, that it comes in bunches, like bananas, and that is surely true in virology. For me there are three very important international meetings, all of which have greatly impacted the direction of our research and the personnel in our program. These are the International Virology Congress (IVC), the Plant Virus Epidemiology Symposium (PVES), and the Congress of the International Organization of Citrus Virologists (IOCV). Each occurs every three years. Unfortunately, all three always occur within a 12 month period!! This past September I was invited to give the plenary address at IOCV, but I knew that I would be attending one or both of the IVC or PVES. So Dr. Manjunath Keremane delivered the address and represented us very well. So I try to be selective and go only where it will be useful to Florida, to our program, or where hopefully we can contribute something unique or help to

prevent some disaster. This last trip had all of those elements.

I went first to the University of Algarve in Faro, Portugal to do research with Dr. Gustavo Nolasco, who has given seminars here and at Lake Alfred during his previous visits. He will visit us again in June. With him we are developing more efficient and more sensitive methods for CTV detection and strain differentiation. A publication and new techniques will result from that visit. Then Gustavo and I drove to Morocco to discuss CTV with Mustapha Zemzami (who also has presented a seminar in this department) of the Royal Domaines (the agricultural holdings of King Hassan), and also with Moroccan scientists, regulatory authorities and growers.

I had really questioned the value of this part of the trip. I had been to **Mo-**



rocco twice in the past three years and presented five seminars on the threat posed by CTV to their out-

standing and valuable citrus crop (sold as early fresh fruit in northern Europe) because of the presence of some CTV already in Morocco and *T. citricida* and severe strains of CTV present on Madeira Island, only about 250 miles off their coast, and they also had heard it from their own scientists. Yet they had done nothing to address the problem. So we gave several more seminars and spoke at a large gathering of scientists, regulatory authorities and growers. In the morning, the Director of Plant Quarantine was as before, in denial and downright hostile to me, asking how I knew of and where the CTV was in Morocco. He must have had a nice lunch, because when he chaired the afternoon session, he admitted the presence of CTV in Morocco and said they needed an immediate

program to combat it and protect their industry. We are now working with them jointly on the program, and I hope that we have helped them to prevent a disaster.

There were two other research activities during the trip. Following PVES, I went to IVIA to meet with colleagues, and we all shared our recent progress on CTV. I hope that from this, one of them will come to UF soon for sabbatical. Then I went to Montpellier, France to visit with John and Laurence Quiot, who were here on sabbatical in 1984 with Dan Purcifull. Their research is on the detection and differentiation of the several strains of the plum pox potyvirus, which is ravaging stone fruits throughout Europe. I had met with them on an earlier trip. They believed that our CTV methods would be useful in their program, and they applied to their agency for sabbaticals to come and learn them. Unfortunately, the sabbaticals were not approved, but they do plan to come for several weeks this fall. So that explains my traveling and some of the benefits thereof.

The Plant Virus Epidemiology Symposium is organized under the auspices of the Plant Virus Epidemiology Committee of the **International Society of Plant Pathology**.



The previous six symposia have been held in Oxford, UK, Corowa, Australia, Orlando, FL, Montpellier, France, Bari, Italy and Jerusalem, Israel. I have attended three of the symposia, and have found them to be one of the most useful meetings I ever attend. This is because of the relaxed structure of the meeting, the diversity of attendees (virologists, entomologists, agronomists, horticulturists, statisticians, etc.) and the many opportunities for both structured and individual discussions. Each speaker is expected to

view the posters and read the related abstracts, and then to weave that information into his/her presentation. That is challenging, but it makes the talks broader, more interesting and less personal. This year I spoke on CTV epidemiology and co-chaired a session on "Current Approaches to Plant Virus Epidemiology", which described a lot of "new" diversity in viruses and in their vectors, and utilized a lot of molecular biology. For this PVES there were a total of 32 oral presentations and 93 posters, and there were 154 pre-registrants. The major emphasis this year was on geminiviruses and whiteflies, the current scourges of the vegetable industry in Spain and elsewhere. I have the book of abstracts, and it is available to anyone who is interested

Faculty, staff, and students

Interview with a visiting scientist: Guozhen Liu. Guozhen is originally from Baoting, China, but travelled to Beijing to do his B.Sc., where he majored in Biophysics at Beijing Agricultural University. Since graduating in 1984, he has been working for Hebei Agricultural University. He was employed while pursuing both his M.Sc. and Ph.D. Guozhen received his M.Sc. in 1990 from Zhejiang Agricultural University where he worked on the somoclonal variation of winter wheat. From 1996-1999, Guozhen worked on his Ph.D. in Beijing at the Institute of Genetics at the Chinese Academy of Sciences. The focus of his dissertation was the molecular cloning of the homeo box gene from rice. Guozhen and Dr. Song shared the same advisor in China and met last year at UC Davis. When Dr. Song was hired at UF, he invited Guozhen to join him here. Guozhen arrived here on March 18, and since then, they have both been continuing to work on the Xa21 gene in rice.

When he was younger, Guozhen enjoyed playing badminton and soccer, but doesn't do so very often any-

more. He now enjoys spending time with friends chatting etc. Guozhen mentioned that he is enjoying his time here and that many people have been very helpful to him. He also said that he enjoyed our spring social last month at Ginnie Springs, but is looking forward to the next one so that he can have the chance to go swimming and canoeing. He found the springs to be beautiful and hopes to visit all of the other famous and interesting attractions that Florida has to offer.

A new addition to the family: Bob and Pamela Kemerait had a beautiful baby girl on May 28th 1999. Her name is Mia Perrine Lopez Kemerait and she is perfectly healthy and doing well with her parents at home. Congratulations to both of you and good luck with the Mia in the future. We wish you the best as your family grows.

Another Award!: Alfred Addison has again been recognized for his superior work- this time with a Superior Accomplishment Award, the Gabor Employee Recognition Award. Congratulations!

A fond farewell: Rodney and Liane would like to say a final goodbye and if you would like to keep in touch, here are their e-mail addresses:
Rodnypettway@hotmail.com and
Rosewich@hotmail.com

Someone is leaving our department: Wiejun Chen is leaving our department to become a lab manager at the medical school. At Shands, she will be working at the department of biochemistry and molecular biology. Good luck to you in your new career choice.

New faculty Member - Dr. Carol Stiles has been chosen for the new position as faculty member of our department. As you may remember she is currently working at Valdosta State University. She will be working on fungal pathogens of

turfgrass. She will also be responsible for teaching many of the undergraduate courses and some of the graduate level courses in the department. We would all like to welcome her aboard and would like to wish her the best of luck as she ventures in to her new career.

New Graduate Student Representatives: The graduate students elected new representatives recently at their monthly meeting. Congratulations to the following officers and good luck with your new positions!

President – Ricardo Harakava
Vice President – Ronald French
Secretary – Marlene Rosales
Treasurer – Angela Vincent

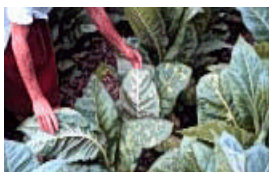
A new graduate student

It is always a pleasure to introduce new students to our team, especially because it may represent a new beginning not only for him or her, but also for all of us who will get to know that person. At this time, it is our pleasure to welcome **Yolanda Peterson.**

Yolanda was born and raised in Cape Town, South Africa, and thus, her first language is English. This is her first stay in the U.S., and she will be working towards a Ph.D. degree in Plant Pathology. Her background is in microbiology and her master's research involved bacteriophage characterization in *Xanthomonas* spp. But for her, life isn't all studying. Whenever she felt stressed, Yolanda used to spend her available time playing tennis or hiking in the mountains behind the University of Cape Town. What a nice distraction!

From the Field

Blue Mold of Tobacco



By Bob Kemerait Jr.

This past spring, I had the opportunity to visit a field of young **tobacco** growing just across the Santa Fe River in Union County. Given the cool stillness of the morning, the historical significance of the area (an old Spanish mission was established nearby for Timucuan Indians) and a vivid imagination, my thoughts wandered far from the current litigation between the tobacco industry and the State. Rather, as I looked out over the rows of knee-high plants growing in the sandy north-Florida soil, I thought about the introduction of the crop to the English colonies by John Rolfe in 1612 and the important role that tobacco played as an export during colonial times. I also pondered the role that tobacco played in the agriculture of the Old South and the human struggles that went with it.

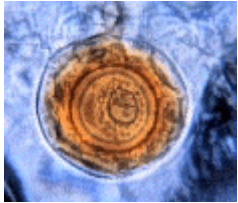
Many people are not aware that tobacco remains a significant field crop in northern Florida. It is an important component of the economies of counties such as Columbia, Suwannee, Hamilton, Lafayette, Alachua, and Madison, and is grown to some degree in neighboring areas.

In 1998, tobacco was grown on almost 7000 acres in the state and the harvest was valued at nearly 30 million dollars. Most of the tobacco produced here is known as "flue-cured" and is used primarily in the manufacture of cigarettes. The tobacco derives its name from the process by which it is cured in metal flues for five to seven days at which time it is ready for auction.

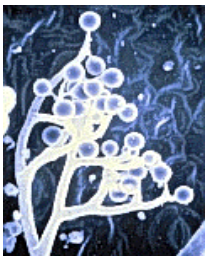
My daydream was abruptly interrupted when a modern day tobacco grower and owner of this field drove up quickly in his pick-up truck and pulled beside us leaving a long plume of dust behind him. Despite his polite "good morning" and firm handshake, his face and gestures suggested concern and agitation and a desire to speak directly with Dr. Kucharek. This particular grower

also farmed tobacco fields in nearby Columbia County and was anxious because of the incidence of "blue mold" in one of them. Although the disease was also present in the field in which we were standing, the incidence was still relatively low compared to what he was seeing in the other field. Dr. Kucharek listened patiently and promised to help him as he could. In the end, the grower would be forced to harvest his crop early resulting in loss of profit and yield.

Blue mold, also known as downy mildew of tobacco, is caused by the oomycete *Peronospora tabacina* Adam that is found in the order Peronosporales, a sister to the Pythiales containing *Pythium* and *Phytophthora*. *Peronospora tabacina* produces both



sporangiospores, or "conidia" are the most important propagules in the spread of the disease; the role of the oospores remains unclear. The conidia are produced on sporangiophores that grow



through the stomates on the undersides of infected leaves. The **sporangiospores** may produce as many as a million conidia per square centimeter of leaf surface. The blue-gray color of these spore masses gives the disease its name. Spores are produced when the air temperature is between 46° and 86° F; temperatures that are higher or lower inhibit production.

Though the **sporangiospores** are



sensitive to both desiccation and ultra violet light, they can be spread by wind and air

currents over considerable distances. Optimal conditions for disease development occur when night temperatures are between 50° and 65° F and daytime temperatures are between 70° and 80° F. Ample leaf moisture, from rainfall, irrigation, or dew, is also required. The pathogen is very sensitive to hot, dry conditions and these help to slow the spread of the disease. In Florida, conditions that are most suitable for the start of an epidemic occur in the spring during the early part of the season when the young plants are still in the seedling beds. Symptoms of the disease in young plants include yellowing and cupping of the leaves. These plants are likely to turn brown and die and are often arranged in disease foci throughout the bed. The infection in young plants may also become systemic. Systemic infection is characterized by the distortion and yellowing of leaves coupled with brown streaks occurring in the vascular tissue. Infections that occur after the tobacco plants have been transplanted into the field usually produce yellow leaf spots of different sizes. Blue-gray sporulation is often visible on the undersides of these leaves. The leaf spots will eventually turn brown and necrotic and may coalesce with other spots.

According to Dr. Tom Kucharek, blue mold is capable of causing total loss in a tobacco crop, especially when conditions are conducive in the transplant beds. When blue mold is uncontrolled in the transplant beds, losses can approach 100%. However, during normal years in Florida, losses due to blue mold on plants that are already in the field rarely amount to more than 2%, though he adds that losses for individual growers may approach 10 to 15%. In the latter part of the season, higher air temperatures normally help to slow the disease, though severe losses have been reported. The use of irrigation in current tobacco production has increased the importance of the disease. Unusually cool, wet weather during 1979 and 1980 led to

epidemics of blue mold that cost growers in the United States and Canada approximately \$250 million and nearly crippled the economy of Cuba where tobacco remains a major export.

Control of blue mold is accomplished using both cultural and chemical measures. Some of the cultural measures that have been used successfully include delayed planting of seeds in the transplant bed until after January 10th, avoidance of excessive nitrogen and irrigation, careful scouting of fields for early symptoms, and the destruction of any plants remaining in the transplant bed after the fields are planted. Stalks and residue left in the field after harvest should be plowed under to reduce the amount of inoculum present in the field in the following season. Recommendations for chemical applications can be found in Extension Plant Pathology Report Number 23, "Disease Control Program for Flue-Cured Tobacco" by Dr. Tom Kucharek. This publication can be accessed on the web at <http://plantpath.ifas.ufl.edu/takextpub/>.

Information for this report was taken from:

Plant Pathology Fact Sheet No. 15, Common Leaf Disease of Flue Cured tobacco, by Dr Tom Kucharek.

Florida Agricultural Statistics Service, Field Crops, February 17, 1999.

Nesmith, W. C. 1984. The North American Blue Mold Warning System. Plant Dis. 11: 933-936.

Compendium of Tobacco Diseases. 1991. Eds. H. D. Shew and G. B. Lucas. APS Press, St. Paul, MN.

Recent Publications

Pring, D. R., H. V. Tang, W. Chen, W. Howad, and F. Kempken. 1999. A unique two-gene gametophytic male sterility system in sorghum involving a possible role of RNA editing in fertility restoration. *J. Hered.*90:386-393.

Momol MT, Simone GW, Dankers W, Sprengel RS, Olson SM, Momol EA, Polston JE, and Hiebert E. 1999. First Report of Tomato Yellow Leaf Curl Virus in Tomato in South Georgia. *Plant Disease* 83:487.

Important Dates

July 5, Monday: Independence day observed

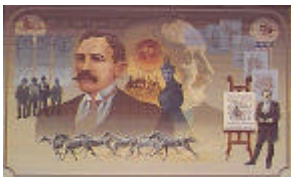
all classes suspended. All offices closed
July 9, Friday, 3:30 PM: Deadline for payment of fees

July 16, Friday, 4:00PM: Submission of defended Master's theses.

Leisure and Culture '99 and Beyond

July

*"Robert Rauschenberg: The Chinese Summerhall Series." Exhibition on display through September 26, 1999. Call 392-9826.



* "Asian Art from the Permanent Collection" on display in the Harn Museum through January 2000. Call 392-9826.

*The works of Isamu Noguchi on display at Harn Museum through September 26, 1999. Call 392-9826.

*European Prints from the Harn Museum Collection. Through August 22, 1999. Call 392-9826.

* "The British Landscape: Watercolors from 1760 to 1860." Through August 15, 1999. Call 392-9826.

* "Masters of the Night: The True Story of Bats", at the Florida Museum of Natural History. Through September 6. Call 846-2000.

* "Nature of Fiber: Texture, Form and Color" at the gallery, 2nd floor, JWRU. Through July 7, 1999. Call 392-2378.

* "Gregory Barsamian" at the University Gallery through July 30, 1999. Call 392-0201, ext. 228.

* "Giving Honor: Native American Women's Art from the Florida Museum of Natural History." Through August 29, 1999 at Harn Museum. Call 392-9826.

* "Building the American Collections: Selected Acquisitions Since 1995." Through August 15, 1999 in the Harn Museum. Call 392-9826.

* "Children's Summer Classes-Session C: Florida's Earliest People." For Children K-5. July 12-16, 8:30 am to 12:00 pm. Call 846-2000.

* "Children's Summer Classes-Session C: Bats, Birds & Butterflies." For Children K-5. July 12-16, 1:00 pm to 4:30 pm. Call 846-2000.

* Plants and Pollination Public Program. Discover Plants and pollinators from the animal kingdom.

* "Children's Summer Classes-Session D: Rock Riddles and Mineral Mysteries." For Children K-5. July 19-23, 8:30 am to 12:00 pm. Call 846-2000.

* "Children's Summer Classes-Session D: Ocean Odyssey." For Children K-5. July 19-23, 1:00 pm to 4:30 pm. Call 846-2000.

* "Something's Fishy Public Program. Examine freshwater and marine animals. July 21, 1999 from 1:00 pm to 3:00 pm. Call 846-2000.

Things you didn't know, you didn't know....

A crocodile cannot stick its tongue out.



A snail can sleep for three years.

All polar bears are left handed.

American Airlines saved

\$40,000 in 1987 by eliminating one olive from each salad served in first-class.

Americans on average eat 18 acres of pizza every day.

An ostrich's eye is bigger than its brain.

Babies are born without knee caps; they don't appear until the child reaches 2 to 6 years of age.

Butterflies taste with their feet

Cats have over one hundred vocal sounds, dogs only have about 10.

Cats' urine glows under a black light.

China has more English speakers than the United States.

Donald Duck comics were banned in Finland because he doesn't wear any pants.

Dueling is legal in Paraguay as long as both parties are registered blood donors.

Elephants are the only animals that can't jump.

February 1865 is the only month in recorded history not to have a full moon.

Humans and dolphins are the only species that have sex for pleasure.

"I am." is the shortest complete sentence in the English language.

If Barbie were life-size, her measurements would be 39-23-33. She would stand seven feet, two inches tall and have a neck twice the length

of a normal human's neck.

If the population of China walked past you in single file, the line

would never end because of the rate of reproduction.

If you yelled for 8 years, 7 months and 6 days, you will have produced

enough sound energy to heat one cup of coffee.

In ancient Egypt, priests plucked EVERY hair from their bodies, including their eyebrows and eyelashes. In the last 4000 years, no new animals have been domesticated.

Leonardo Da Vinci invented the scissors. Marilyn Monroe had six toes.

Michael Jordan has more money from Nike annually than all of the Nike factory workers in Malaysia combined.

No word in the English language rhymes with month.

Nutmeg is extremely poisonous if injected intravenously.

On average, people fear spiders more than they do death.

One of the reasons marijuana is illegal today is because cotton growers in the 1930's lobbied against hemp farmers-they saw it as competition.

Our eyes are always the same size from birth, but our nose and ears never stop growing.

Right-handed people live, on average, nine years longer than left-handed people do.

Shakespeare invented the words 'assassination' and 'bump'.

Some lions mate over 50 times a day.

Starfish don't have brains.

Stewardesses is the longest word typed with only the left hand.

The ant always falls over on its right side when intoxicated.

The average human eats eight spiders in their lifetime at night.

The catfish has over 27,000 taste buds.

The cruise liner, Queen Elizabeth 2, moves only six inches for each gallon of diesel that it burns.



The electric chair was invented by a dentist.

The human heart creates enough pressure when it pumps out to the body

to squirt blood 30 feet.

The male praying mantis cannot copulate while its head is attached to its body. The female initiates sex by ripping the male's head off.

The most common name in the world is Mohammed.

The name of all the continents end with the same letter that they start with.

The name Wendy was made up for the book 'Peter Pan'.

The Pentagon in Arlington, Virginia, has twice as many bathrooms as necessary.

When it was built in the 1940's, the state of Virginia still had segregation laws requiring separate toilet facilities for blacks and whites.

The strongest muscle in the body is the tongue.

The word racecar and kayak are the same whether they are read left to right or right to left.

There are two credit cards for every person in the United States.

TYPEWRITER is the longest word that can be made using the letters only on one row of the keyboard.



Women blink nearly twice as much as men.



The Latest from...

"Tobacco Mosaic Virus: One Hundred Years of Contributions to Virology." Edited by Scholthof, Shaw and Zaitlin.

"The Formative Years of Plant Pathology in the United States." By Campbell, Peterson, and Griffith.

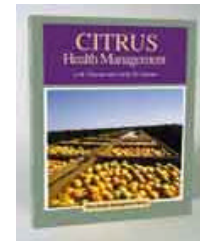
"Emerging and Reemerging Plant Diseases Slide Set". Compiled by Schumann and Braun.

"Biological and Cultural Tests, Volume 14." Edited by M.T. McGrath.

"Compendium of Corn Diseases, Third Edition." Edited by D.G. White.

"Corn Diseases 3rd Edition Slide Set"

"Plant Microbe Interactions, Volume 4." Edited by G. Stacey and N. Keen.



"Containment Facilities and Safeguards for Exotic Plant Pathogens and Pests." Edited by R.P. Kahn and S.B. Maher.

"Citrus Health Management". Edited by **L.W. Timmer** and **L.W. Duncan**.

"Illustrated Genera of Ascomycetes, Volume II." By R.T. Hanlin.

"Combined Keys to Illustrated Genera of Ascomycetes I & II." By R.T. Hanlin.

"Mushrooms and Other Fleshy Basidiomycetes Slide Set".

"Illustrated Genera of Imperfect Fungi, 4th Edition." By H.L. Barnett and B.B. Hunter.

"Digital Image Collections; Diseases of Field Crops CD-ROM

Hey Budding Writers and Folks with Questions : We want to hear from you! If you would like to join our staff or contribute an article, contact us!

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