Highlights

PLP News

The Newsletter of the Plant Pathology Department
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Offensive Plant Pathology?

By Dr. FW ZETTLER

It can be said that plant pathology traditionally plays a passive, defensive role in agriculture, coping with outbreaks of disease when they appear and devising strategies for protecting plants against future onslaughts. But, as in American football, it's the assertive offense that gets all the fame and glory from the news media. For example, news reports and scientific articles in the journals Plant Disease (3) and Biological Control (1), describe a virulent new forma specialis of *Fusarium oxysporum* wreaking havoc upon South America's lucrative cocaine industry. In it's June issue, Scientific American (2) featured an article entitled Germ Warfare Against Crops, which listed fusarium and other plant pathogens that might be used as biological warfare weapons. Most recently, on July 17th, the Saint Petersburg Times featured an article headlined Killer fungus touted to eradicate state pot crop. In it, Florida's new drug czar, Jim McDonough, working at the behest of Governor Jeb Bush, is encouraging the use of *Fusarium oxysporum* as a mycoherbicide for marijuana. As if this was not enough, we now know that the "world's most dangerous person," Dr. Rihab Taha, who heads up Iraq's biological warfare program, received her graduate training working on bacterial plant pathogens in England (4, 5). Clearly, our discipline's days as the Rodney Dangerfield of agriculture are numbered.

I leave it to you to assess the true merits of this titillating new directive. I personally find it useful in my teaching program, for it provides an attention-grabbing forum for discussion. I used it during the Summer B term when teaching the Agricultural Honors Colloquium (AGG 4921) with Kate Sieving of the Department of Wildlife Ecology and Conservation. Dr. Charudattan was an invited speaker and he did an outstanding job in laying out the practical aspects of using plant pathogens as biological warfare weapons. (He declined to provide specific details, however, on his relationships with the 42-year-old Dr. Taha.) The following AGG 4921 assignment features this individual, who UNSCOM inspectors ominously describe as "Dr. Germ."

AGG 4921 Assignment-
Dr. Germ, "The World's Deadliest Person"

For the first week of class, we have decided upon a common project for all AGG 4921 students, namely to investigate the issue of plant pathogens as potential weapons of biological warfare in relation to the activities of "Dr. Germ." First we want each of you to envision a profile of "Dr. Germ" before you search the literature. Then, you'll need to access the literature to ascertain who "Dr. Germ" really is. Finally, after reviewing the information provided about Dr. Germ's nefarious program, we want you to provide your own assessment as to whether or not the threat posed by Dr. Germ is real. Believe it or not, this is a serious assignment! Dr. Germ is a real person living in Iraq and heading up Saddam Hussien's biological warfare program. In fact, Dr. Germ, a pseudonym, is one of the main focal points of the **UN** Inspection Team directed by Dr. Richard Butler. The lethal subjects under investigation in Iraq include wheat smut, aflatoxins, botulinum, anthrax, and a host of other sundry microbial disease agents of humans, animals and plants. But in regards to plant disease, how much is real and how much is hype? To address such an issue, you will need to know something about plant pathology and what conditions are conducive to major epidemics. Traditionally, we are trained to control diseases. Yet plant pathogens are also being used to attack plants as well. For example, a biological-control program targeting pestiferous terrestrial and aquatic weeds is headed by Dr. Charudattan in our department. All you have to do is extend

this logic for the eradication of pestiferous plants to assess the threat that Dr. Germ's activities could pose. Clearly, you will need to know something about 1) Dr. germ's background, 2) what plant pathogens a person could have in mind, and 3) how those pathogens act as disease agents. We want this report to be a practical assessment of the threat that Dr. Germ's work poses to the Middle East and the rest of the world. Is it real or is it hype? The US government has been accused of blowing this issue way out of proportion for its own nationalistic purposes. What do you think—from the standpoint of plant pathology?

News Quotes

4 September 1995 (Newsweek's Christopher Dickey) *"Iraq also loaded [into missiles warheads and bombs] a little-known fungal poison called aflatoxin, which may cause cancer…If Saddam had used these devices successfully, the result would have been as horrifying as Hiroshima or Nagasaki."*

22 December 1991 (New York Times News Service) *"In the war on cocaine, a humble root fungus is having a greater impact on Peru's coca leaf harvest than the will of Washington…Coca growers charge that the US is spreading the fungus with helicopters…."*

17 July 1999 (St. Petersburg Times by Julie Hauserman) *"There's a killer fungus among us, and Florida's new drug czar Jim McDonough hopes to one day let it loose to murder the state's illegal marijuana crops….McDonough has the backing of US Rep. Bill McCollum….McCollum and the US Senator Bob Graham, D-Florida, helped push for $23 million that Congress appropriated this year to eradicate plants that provide the raw material for cocaine, heroin, and marijuana.*

References Cited:

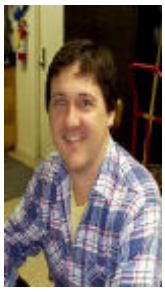
1. Connick, W.J. Jr. et al. 1998. Preparation of stable, granular formulations containing *Fusarium oxysporum* pathogenic to narcotic plants. Biol. Control 13:79-84
2. Rogers, P. et al. 1997. Biological warfare against crops. Scientific American 280:70-75.
3. Sands, D.C. et al. 1997. Characterization of vascular wilt of *Erythroxylum coca* caused by *Fusarium oxysporum* f.sp. *erythroxyli* forma specialis nova. Plant Dis. 81:501-504.
4. Turner, J.G. and R.R. Taha. 1985. Contribution of tabtoxin to the pathogenicity of Pseudomonas syringae pv. Tabaci. Physiol. Plant Pathology 25:55-69.
5. Turner, J.G., R.R. Taha, and Debbage, J.M. 1986. Effect of tabtoxin on nitrogen metabolism. Phsiol. Planatrum 67:649-653.

Faculty, staff, students, alumni, and colleagues of our department…

Visiting scientist from Mexico. Dr. Ana Maria Bailey is a new addition to our department. Ana arrived in Gainesville on July 1st and will be staying among us until July 2000. She is originally from Monterrey, but has been living in Irapuato, located in the state of Guanajuato, for many years. She is a professor at the CINVESTAV (Center for Research and Advanced Studies) in the Department of Plant Genetic Engineering. She will be spending her sabbatical leave working under Dr. Dave Mitchell.

Ana obtained her Ph.D. in 1984 from the University of California at Riverside, where she studied under Dr. Mike Coffey. Part of her research included working on biodegradation of Metalaxyl (Ridomil). She obtained a Master of Science degree in Mexico, working under Roberto Garcia, a former student of Dave Mitchell. At her laboratory (The Molecular Laboratory for Plant Pathogenic Fungi) Ana has been able to clone the *Phytophthora capsici* gene for cutinase. She made recombinant DNA antibodies and used them to identify *P. capsici.* She noticed that these antibodies for cutinase are specific and do not react with other cutinases. If cutinase genes are species specific, that would prove useful in detecting *Phytopthora* and *Pythium* at the species level. Here in Gainesville, she will study cutinase genes of different species of *Phytophthora* and *Pythium* and hopes to come up with a diagnostic tool for detection and species identification of soilborne pathogens.

Ana is planning to present a seminar sometime in the fall. Although she has already started working on her project she has already found time to enjoy some of what Florida has to offer. She has traveled to Florida before, and has visited Orlando, Tampa, and recently, St. Augustine. She truly enjoys Florida (except the heat, of course) and likes the fact its peaceful and very green all over. For her, coming to **Florida** brings back memories. She had originally planned to do her Ph.D. in our department but had to postpone her studies and ended up in California instead. It's never too late, so… welcome to Florida and our department!!!



Awards-

Yasser M. Shabana, Associate Professor, Department of Plant Pathology, Faculty of Agriculture, Mansoura University, Egypt, was recently awarded The 1998 National Prize of Egypt for Distinction for the young scientists in recognition of his research work on biological control of weeds with plant pathogens and microbial pesticides and also for his contributions to the scientific community

of **Egypt**. This award is given to Egyptian young scientists who perform original and excellent research with exceptional scientific value to the nation in the field of agricultural sciences. Shabana has also been awarded The 1997 Award of Merit by the University of Mansoura, Egypt and The 1993 IFS/King Baudouin Award by the International Foundation for Science (IFS), Sweden. Shabana is currently heading a French-financed project on biological control of waterhyacinth by using the host specific fungus, *Alternaria eichhorniae*. He is also serving as a Scientific Adviser for the IFS, Sweden for the area of Aquatic Resources. Shabana has received several research grants from the IFS, The Third World Academy of Sciences (TWAS), Italy, and The Egyptian Ministry of Agriculture. He received his Ph.D. in 1992 under a joint supervision system between University of Mansoura, Egypt and the University of Florida. Subsequently, Shabana returned to our department as a postdoctoral associate in the laboratory of **R. Charudattan** and investigated the impact of pathogens on the population dynamics of the submerged aquatic weed hydrilla.

Meetings-

Dr. Jones, Juliana, and Gustavo recently returned from England, where they participated in the 13th John Innes Symposium on "Attack and Defense in Plant Disease". The meeting was held at the John Innes Centre in Norwich, July 20-23. The participants were impressed with the high level of the lectures and pointed out that the environment was conducive for informal talks with other participants. Gustavo presented a poster entitled, "Functional domains of the AvrXv3 protein and their role in eliciting the hypersensitive reaction" (G. Astua-Monge, G. Minsavage, J.B. Jones, R.E. Stall, and M.J. Davis).

Dr. Jones also co-authored the poster: "Differential induction or suppression of host defense responses by *Xanthomonas campestris* pv. vesicatoria *hrp* mutants" (W.P. Moss, **J.B. Jones**, and M. Wilson).

Bob Harveson successfully defended his dissertation entitled "Evolution of the parasitic relationship of Melanospora and its allies with *Fusarium oxysporum*" on June 21. He worked under Dr. Kimbrough's guidance. He has accepted a faculty position with the University of Nebraska and will be located at the Panhandle Research and Extension Center in Scottsbluff, NE. He has a 50% research / 50% extension appointment with responsibility for diseases of sugar beets, dry edible beans, and potatoes. He and Tammy will be located for several months at 1445 Sage St.,Gering, NE, 69341.

They promise that e-mail addresses will be forthcoming, and ask us to stay in touch!!!

Coffee Break Schedule and Birthdays for August 1999

Friday Coffee Break

8-13 Charudattan's Lab
8-20 Gabriel's Lab
8-27 Jones' Lab

Birthdays!!

8/5 Richard Blacharski
8/8 Gene Crawford
8/10 Bayram Cevik
8/12 Alvaro Urena
8/13 Dr. Zettler
8/23 Gabriela Wyss
8/24 Lisa Nodzon
8/26 Patty Hill

From the Field

"Midnight in the Garden of Allergens and Argentina"

by
Bob Kemerait

The thirty-first annual meeting of the American Peanut Research and Education Society (APRES) was held at the Hyatt Regency in Savannah, **Georgia** from 13-16 July, 1999. I don't know how many of you have been to Savannah lately, but I am here to inform you that this fairest of southern towns has been revitalized (read: overrun) with the popularity, infamy, and intrigue of a single book. The true-life crime story, "Midnight in the Garden of Good and Evil," written by John Berendt, describes a murder that occurred in Savannah in the early 1980's and also captures the essence of a certain slice of life in this colorful colonial city. At this point I must admit that I have neither read the book nor seen the movie adaptation directed by the High Plains Drifter himself, Clint Eastwood. However, in a move that can only be described as impulsive, I did go out and buy a copy of the book while I was there. Reading the back cover gave me all of the information that I have passed on to you. Everywhere you turn in Savannah, there are references to historic homes, city squares, cemeteries, and the statue of a forlorn-looking girl all associated with this book. At this point you are probably asking yourself why I digress from a report of the peanut science meeting. It is only to inform the reader that like this host city, peanut production today is filled with intrigue and suspense no less worthy of literary effort.

Peanuts are grown in a broad band of southern states in the U.S. including New Mexico, Texas, Oklahoma, Alabama, Georgia, Florida, South Carolina, North Carolina, and Virginia. Georgia, where peanuts were grown on over 600,000 acres in 1998, is the largest producer. In comparison, peanuts were grown on about 90,000 acres in Florida during the same year. The scientific community associated with peanut production is represented by the American Peanut Research and Education Society (**APRES**). The society is composed of agronomists, agricultural economists, weed scientists, plant pathologists, industry representatives and many others involved in the buying, selling, and manufacture of peanut products. Attending the meeting this year from the Plant Pathology Department were Dr. Tom Kucharek and myself. Dr. Fred Shokes, a pathologist formerly at the North Florida Research and Education Center in Quincy and now the director at the Tidewater Research Center in Suffolk, Virginia, was also there. A number of members of the Agronomy Department at UF were in attendance, including Dr. Jerry Bennett, Dr. Ken Boote, Dr. Ken Quesenberry, Dr. Ben Whitty, Dr. Maria Gallo-Meagher, Dr. Dan Gorbet, Harry Wood, Mach Murakami, and Marcos Freire. Some students and faculty may remember Dr. Albert Chiteka who took several courses in our department, though he received his Ph.D. in agronomy in 1998. He returned to the U.S. from Zimbabwe to attend the meetings. In all, the conference attended by several hundred participants and was hosted by faculty from the **University of Georgia**.

The annual meeting facilitates an exchange of information concerning the entire effort to produce and sell peanut products. Unlike other scientific conferences, such as the APS meeting, one can learn about the many problems that face a single industry and the relative importance of plant diseases in the "big picture." The major topics of discussion at this meeting were the increasing importance of peanut allergens and foreign competition in peanut production, primarily from Argentina. In the past, the issue of aflatoxins was of grave concern; however the emerging problem of allergic reactions to peanut products has captured the industries attention. While severe allergic reactions after consuming products containing peanuts are not common, serious consequences including death have been known to occur. As one speaker pointed out, to date no deaths in the U.S. have been linked to eating peanut products contaminated with aflatoxins. This is not true for allergic reactions to peanuts. Airlines and school systems have threatened to remove products containing peanuts from their menus. The peanut industry is trying to deal with this situation in a number of ways, such as through public education and supporting research at the University of Arkansas aimed at developing a vaccine for this allergy. Consumption of peanut products, such as peanut butter, has been declining in recent years. Therefore, the industry is taking this issue very seriously both for public safety and for its own survival.

Two of the largest peanut producers in the world are China and India; however most of their yield is used in the production of cooking oil. Nearly all of the peanuts produced in the United States are eaten as peanut butter, snacks and in candy. While the largest market for snack peanuts is right here at home, the U.S. growers also export peanuts to countries such as Holland. After the passage of international trade agreements, growers in the United States now are having to compete with other countries for a share in the peanut market. Perhaps the biggest competition for American producers comes from the country of **Argentina**, which has seen a huge increase in production in the past decade.

Not only can growers in Argentina produce *and* ship peanuts at a much lower cost than can American growers, but contamination by aflatoxin is not nearly the problem in Argentina as it is in the southeastern United States. To remain competitive, growers in the United States must maintain superior peanut quality while at the same time minimizing the cost of inputs through careful crop management.

In the area of plant pathology, tomato spotted wilt virus remains an important disease affecting peanut production. It has been a focus of much study, though satisfactory management tools are still elusive. Much of the breeding efforts in the southeastern U.S. have been aimed at developing resistant varieties. One variety that looks promising, FL MDR 98, was developed by Dr. Dan Gorbet, a UF breeder stationed in Marianna. "MDR" refers to "multiple disease resistance". A number of presentations were made on the control of foliar and soilborne fungal diseases using new fungicide programs. Several papers recognized the importance of Folicur (tebuconazole) in the control of Cylindrocladium black rot. Interestingly, for a number of years, Dr. Kucharek stood alone among pathologists in recognizing the benefits of using this fungicide in controlling CBR.

The American Peanut Research and Education Society sponsored the Joe

Sugg student paper competition. Ten students participated in the competition and presented papers on weed science, breeding, agronomy, entomology and plant pathology. Ms. H. Lyerly from North Carolina State University won the competition. Her presentation was entitled "Evaluation of Wild Species of Peanut for Resistance to Tomato Spotted Wilt Virus". The second spot was taken by a student from the University of Florida. (*Congratulations, Bob!!!)*

Finally, no summary of the 1999 APRES meeting would be complete without mention of the extracurricular activities available for the participants and their families. Unlike other meetings, the APRES meeting is geared to provide entertainment for the participants and their families as well. Numerous tours of Savannah were organized for spouses and children. Through the generosity of a number of chemical companies, several very nice meals were provided. Novartis provided every type of peanut snack food that you could imagine in between sessions. Rhone-Poulenc hosted an ice cream social for families during the first night of the meeting. Zeneca hosted an evening dinner cruise down the Savannah River and Bayer hosted a low country boil (a traditional meal in the coastal areas of South Carolina and Georgia) on the final evening of the conference. DowAgrosciences hosted a breakfast buffet on the final morning of the meeting. These events were well attended and appreciated by all.

Peanut producers and industry in the United States must deal with a number of serious problems and growers face an uncertain future at this time. The APRES conference gave researchers from across the country the opportunity to gather and work towards some solutions for these problems. At the same time, these researchers had the chance to relax, re-establish old acquaintances and make new ones in a city of charm and history.

Important Dates

August
6 All Summer Classes End
7 Summer Commencement
7-11 Annual APS and CPS meeting, Montreal
20 New Graduate Student Orientation

Recent Publications and Presentations

Maffia, L.A. and Berger, R.D. April 1999. Models of plant disease epidemics II :gradients of bean rust. Journal of Phytopathology vol.147 (4):199-206.

At the 21st Week of Citriculture held June 7-11 in the State of Sao Paulo, Brazil, Tim Gottwald, USDA, presented two talks. The first was on why an eradication program for citrus canker is important in Florida and the second on the causes and effects of citrus canker spread in Florida. Ken Bailey, USDA, also presented a program on the citrus canker eradication program in Florida.

Leisure and Culture in Gainesville, Florida August '99 and Beyond

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"**The Creation**" by F.J. Haydn is presented by the University of Florida School of Music. Performed by the UF Summer Chorus, Orchestra, and local soloists. Directed by Dr. James Morrow, Director of Choral activities.

Nansi Carroll, Gabriel
Ronald Burrichter, Uriel
Steven Saxon, Raphael
Jean-Ronald LaFond, Adam
Lisa Romero LaFond, Eve
Thursday, August 5, 1999 at 8:00 p.m.
Center for the Performing Arts

All Areas $10. Rush (2 hours before the concert) $5. UF Students 50 cents

(Ed. Note: **Jorge Vazquez**, a student in our department, is a member of the summer chorus)

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*"Robert Rauschenberg: The Chines 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.

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

*European Prints from the Harn Museum Collection. Through August 22, 1999.

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

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

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

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

Highlights of the Professional Development Seminar Series

By Richard Blacharski

During the course of a graduate student's education, the development of professional skills needed for life after graduate school is often overlooked. To fill this void in instruction, a Professional Development Seminar series was offered to Plant Pathology students and students in related fields. The series consisted of five seminars with faculty members, from both inside and outside of the department, and personnel from on-campus resources giving one-hour seminars.

Dr. Zettler presented the first seminar about the interviewing process. The seminar was timely since the department was in the process of hiring a new faculty member. Dr. Zettler used this as a basis for his seminar by explaining what criteria the position required and how each candidate presented theirs skills to the department. Zettler stated, "Selling yourself to potential employers is accomplished by knowing what they are looking for and providing the evidence that you possess the skills to do the job."

The ability to write a scientific paper is an art that is learned through patience and practice. **Dr. Jeffery Jones** informed the students about his personal experience as both an editor and author. Dr. Jones explained what he looked for in papers when he was an editor of Plant Disease. "The mistakes most people make are mostly grammatical," Dr. Jones commented, "make sure you submit a manuscript that is as error-free as possible." A general format of scientific papers and some hints on what to include were presented.

Ms. Helda Montero-Francsis of the Career Resource Center presented the third seminar on curriculum vitae building. The seminar covered the format and content of a strong c.v.

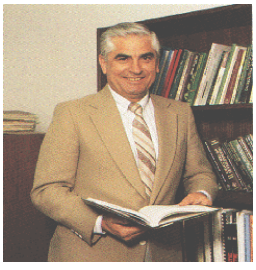
Grant writing, an important skill for young scientists, was covered in the fourth seminar by **Dr. Harry Klee** of the Plant Molecular and Cell Biology program. His experience with grant review panels and grant writing has led him to the motto
"Remember the audience you are writing for and keep it simple."

Dr. Richard Berger gave the last seminar on the proper presentation of scientific work. Berger used the paper abstracts for the upcoming APS meeting to demonstrate mistakes people make when writing in scientific format. The seminar also included some tips and guidelines for poster presentation. Simple mistakes can undermine the information you are trying to convey in a paper; make sure to proofread carefully.

All of the seminars were well attended and on behalf of the students in our department, I would like to thank the presenters. Their excellent work, in both content and delivery, illustrates their strong commitment to the overall education and development of the graduate student body.

Who is Who In Our Department

Dr. George Agrios



Few people in the field of plant pathology haven't met him, but how much do you really know about the chairman of our department? Here's a primer on Dr. Agrios, the man who puts out fires and coordinates the teaching, research and extension programs for our department.

Dr. Agrios earned his BS in horticulture at the University of Thesaloniki in Greece. He came to the US in 1956 as an exchange student and met his future wife during his graduate studies at Iowa State University. He earned his Ph.D. there in plant pathology and returned to Greece to serve in the army. His college sweetheart went with him and taught English while in Greece. After his service in the army, they married and chose to return to the US, in search of a Ph.D. Plant Pathology position. Dr. Agrios found that position at the University of Massachusetts and worked there as a professor until 1988, when he joined the team at the University of Florida.

His current projects within the department include the implementation of the new Doctor of Plant Medicine program, the hiring of a new faculty member, and helping new faculty with startup funds, course outlines and lab set-up. He hopes the new Doctor of Plant Medicine degree will bring in more students and help to achieve his goal of making the University of Florida Plant Pathology program the #1 in the world. He is also constantly revising his textbook. He has been teaching for 25 and a half years, which explains why his favorite part of his job is the interaction with students.

In what little free time he has, Dr. Agrios enjoys relaxing with a magazine, journal or newspaper and taking walks with his wife. He also enjoys art exhibits and fairs, and is a supporter of UF volleyball, gymnastics and basketball. He enjoys spending time with two of his grandchildren who live in the area and hopes to soon travel to Hawaii and Scandinavia.

- **Did you know….**
- That Dr. Agrios is an avid traveler and traveled to Spain and Greece last summer?
- That he used to collect stamps but now they're collecting dust!?
- That he used to spend much of his time camping with his three sons?
- That he knows some Swedish? (ask him whom he learned from….)

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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