



# Louisiana Agricultural Consultants Association

Volume 18, Summer Issue

## Turnrow Talk

June, 2013

### President's Column

*Dwayne Coulon, Ph.D.  
Cajun Ag Services*

#### Normal Weather Finally.....Maybe

As I knelt on the crusted ground this Sunday morning, digging, looking for soybean seed, it occurred to me that I should probably be kneeling somewhere else thanking God for the longest stretch of dry weather in months (eight days so far). However, the dry period was preceded by a mean cold front that dropped anywhere from 3.5 to 8.5 inches of rain on South Central Louisiana on Friday and early Saturday morning. A large amount of soybean acreage had gone into the ground the previous Monday, Tuesday and Wednesday, including my own. Consequently, I spent a good portion of my time this week digging in clients' fields to help them decide how much replanting was necessary and how it should be done. I hate having to make replant decisions. Replantings or spot-plantings almost never yield as well as a good original seeding and they present in-season management challenges and maturity problems at harvest...that was the beginning of this column four weeks ago.

Then the horrendous events in Oklahoma came to pass. They did shift my perspective on the weather and her routine challenges. Our frenzy down here to get crops planted, sprayed, cultivated and fertilized really pales when you consider what folks in Moore, OK have endured.

As I write this, the weekly cold fronts and accompanying wind and rain seem to have finally given way to summer. Actually, we've already had our first tropical storm of the year, and I can't remember ever having one so early in the season. Let's hope the prediction of 20-something storms (12 named, I believe) by the Colorado experts is way off target. The weather, in all her moods controls everything we do in agriculture. We can cram as many wonderful traits as we want to into that tiny seed, but none are expressed without Mother Nature's permission.

Enough on the weather. I will close by making a prediction of my own. We will have a **worm year**. All the signs are there. I've had bollworms in my garden for over a month. I found 3<sup>rd</sup> instar bollworms in soybean terminals on May 29<sup>th</sup>. Yesterday I saw numerous bollworm moths flitting around early-planted bean fields. I also picked up green cloverworms and loopers routinely while sweeping some fields. In addition to the worms, red-banded stinkbugs (RBSB) and brown stinkbugs are

### 2013 LACA Executive Board

Dwayne Coulon, Ph.D., President  
225-937-3145 (m)  
dpcoulon@cox.net

Hank Jones, Secretary  
318-372-9422 (m)  
HankCJAg@gmail.com

Craig DeGravelle, Treasurer  
985-526-0500 (o) 985-637-5528 (m)  
craigd@agrowcredit.net

Randy Richard, Director  
985-688-1805 (m)  
randy.richard@hotmail.com

Travis Vallee, Director  
318-709-5598 (h) 318-451-3776 (m)  
tvcenlaagservices@yahoo.com

Fred Collins, Ph.D., Past President  
318-443-4956 (o) 318-613-0875 (m)  
fredlc54@aol.com

Denise Wright, Executive Director  
318-346-6728 (o) 337-945-3694 (m)  
glpblues@bellsouth.net or wrightpme@aol.com

Jim Griffin, Ph.D., Academia Board Liaison  
225-578-1768 (o) 225-281-9370 (m)  
jgriffin@agcenter.lsu.edu

Jerry J. Ford, Industry Board Liaison  
318-613-5062 (m)  
jerry.ford@basf.com

present in those same fields in good numbers and I've already seen a handful of RBSB egg masses. So, scout early and often. Hope the rest of your season goes smoothly.

### 2013 Membership Directories Coming Soon!

The annually updated printed membership directory will be coming to your mailbox soon. This is a perk of membership, whether you are a voting, associate, affiliate, honorary, or sustaining member contact. Besides members' contact information, the 2013 committees will be listed in the directory. If you are a member of LACA, or the contact for a sustaining member company, be on the lookout for your directory soon!

### Consulting Survey (for members only)

If you haven't completed the survey yet, please click on the link below or copy to your browser

<http://www.surveymonkey.com/s/6RSJ3PD>

## "Addressing Louisiana Environmental Challenges Through the New Louisiana Agriculture and Forestry Nutrient Management Task Force"

An interagency team composed of the Louisiana Department of Agriculture and Forestry, the Louisiana Coastal Protection and Restoration Authority (CPRA), Department of Environmental Quality (DEQ) and the Department of Natural Resources (DNR) is currently in the process of developing a statewide comprehensive Nutrient Management Strategy to address nutrient issues impacting water bodies within the state. These state agencies are working cooperatively to develop a comprehensive strategy for nutrient management that takes into account non-point and point sources and includes agricultural best management practices and voluntary environmental stewardship programs (such as the Louisiana Master Farmer Program). The ultimate goal of the strategy is for agriculture to take the lead role in managing nutrient levels, while addressing regulatory requirements under the Clean Water Act through voluntary, incentive-based approaches within the watershed community.

As a result, state agencies administered an online stakeholder survey, with an agriculture and forestry focus, to solicit input from agriculture producers and various agriculture stakeholder groups. Comments and strategy suggestions have already been obtained through stakeholder meetings with agriculture and forestry leaders.

The comments received will aid in the development of the state Nutrient Management Strategy that will contribute to a larger Mississippi River watershed strategy to address nutrient issues from point sources and non-point sources that may contribute to hypoxia dead zones in the Gulf of Mexico. The state is evaluating potential nutrient management activities and best management practices to address nutrient concerns in Louisiana. The strategy seeks to define implementation success, identify incentives that could improve adoption of nutrient management practices, recognize barriers to implementation, and determine how technical support and public education regarding nutrient management could be improved.

Stakeholder input is an important step to building a nutrient management strategy to improve water quality within the state. Nutrient management can be achieved by agriculture led initiatives based on sound-science and not being pushed and driven by lawsuits. I am committed to a non-regulatory, voluntary approach for the application of research-based, economically achievable practices that help conserve soil and protect our state's water resources. As a result, I have created the Louisiana Agricultural Nutrient Management Task Force that will study the topics related to agricultural nutrient issues and evaluate their impact on our agricultural industries. The Task Force will eventually be charged to support the agency in multiple water-related issues, but the immediate priority is to review and make recommenda-

tions on the following topics:

The need for research, education and training in the selection and application of agricultural fertilizer and soil nutrients in the state;

Identifying practices that apply to the selection, purchase, storage, and application of agricultural fertilizer and soil nutrients, including the reasonableness of rules for their on-farm storage;

Identifying state level ag certainty certification programs that encourages the implementation of best management practices in the generation, handling or land application of nutrients in Louisiana;

Formulating a systematic and economically viable nutrient management program that will both maintain agricultural profitability and improve water quality in Louisiana;

Task force members include representatives from Louisiana agriculture and forestry stakeholders and industry. Representatives are from the following organizations:

Louisiana Cooperative Extension Service  
Louisiana Agriculture Experiment Station  
Louisiana Association of Conservation Districts  
Louisiana Farm Bureau Federation  
Louisiana Soybean and Grain Association  
Louisiana Forestry Association  
Louisiana Landowner's Association  
Louisiana Agricultural Consultants Association  
Louisiana fertilizer industry  
Louisiana Cattleman's Association  
Louisiana poultry industry  
American Sugar Cane League  
Louisiana Rice Grower's Association

This Task Force is an excellent example of producers, industry, universities and state governments working together to address nutrient concerns and will continue to do so in a manner that is consistent with sound science and practical application.

Louisiana serves as a model for the entire nation with the development and implementation of the Master Farmer Program. This program focuses on helping agricultural producers voluntarily address environmental concerns as well as helping them enhance the production and resource management skills they need for the continued sustainability of Louisiana agriculture. The program provides information concerning environmental stewardship, conservation-based production techniques and resource management plans. These programs facilitate the voluntary adoption of systems of conservation practices that improve and protect water



quality. These programs, when properly designed with the input and support of state stakeholders, can provide states with additional tools to address state water quality concerns.

These programs can also recognize the environmental stewardship efforts of farmers and ranchers and can help lay the groundwork for establishment of markets for ecosystem services. These programs encourage agricultural producers' participation where they voluntarily implement affordable conservation practices specifically tailored to producers' operations for addressing the risks of soil erosion and sediment/nutrient run-off.

This program is a national model that helps determine the most efficient utilization of nutrients through a voluntary program that pairs producers with government and sound science. Through a concerted effort, it is our goal to increase agricultural profitability, manage run-off, and enhance the sustainability of our natural resources.

More information on the Louisiana Nutrient Management Strategy can be found at [www.lanutrientmanagement.org](http://www.lanutrientmanagement.org).

**Mike Strain, DVM**  
*Commissioner of Agriculture & Forestry*



## LACA Annual Conference Survey Results

A survey was made available to all LACA membership, as well as those attending the 2013 conference and those who have attended in the past. Following are the results compiled over a period of two weeks since survey was sent out...

1. Please rate your experience at the 2013 LACA sponsored Louisiana Agricultural Technology & Management Conference at Paragon Casino Resort in Marksville, LA, February 13-15, 2013.

Extremely Disappointing: 1.89%  
Somewhat Disappointing: 7.55%  
Somewhat Beneficial: 47.17%  
Extremely Beneficial: 43.40%

2. Please rate the probability of attending another LATMC at Paragon Casino Resort.

Would not attend: 0%  
Probably would not attend: 1.85%  
Would attend: 55.56%  
Prefer this venue: 42.59%

3. Rank the following in order of importance with 1 being least important and 5 being most important.

	1	2	3	4	5
—Meeting Rooms (set-up and space)	29.63%	1.85%	12.96%	14.81%	40.74%
—Hotel Guest Rooms (cleanliness and amenities)	14.55%	23.64%	12.73%	32.73%	16.36%
—On-site Restaurants and/or Bars	1.85%	37.04%	40.74%	14.81%	5.56%
Extra Curricular Activities (gambling, golfing, spa, theater)	37.04%	18.52%	11.11%	14.81%	18.52%
Convenience of outside restaurants and/or shopping	16.67%	18.52%	22.22%	24.07%	18.52%

4. Do you think the LATMC should be moved to a new venue, and if so, how often should we alternate between locations?

No 60.78%  
Yes, change location every year 9.80%  
Yes, change location every two years 21.57%  
Yes, change location every three years 7.84%

5. What do you like best about Paragon Casino Resort in Marksville?

Centrally located 69.23%  
Convenience of having meeting, lodging, entertainment under one roof 53.85%  
Conference center (meeting rooms) 46.15%  
Hotel accommodations 40.38%  
Quality of food 21.15%

6. What do you like least about Paragon Casino Resort in Marksville?

Hotel guest rooms 23.26%  
Conference center (meeting rooms) 6.98%  
Gambling establishment 34.88%  
Smoking allowed 74.42%  
Food quality 18.60%

7. Rank the future locations below in order of preference with 1 being least desired to 5 being most desired.

	1	2	3	4	5
Alexandria, LA	15.38%	28.85%	17.31%	19.23%	19.23%
Lafayette, LA	30.19%	22.64%	16.98%	18.87%	11.32%
Marksville, LA	17.31%	7.69%	26.92%	23.08%	25.0%
Pineville, LA	16.98%	18.87%	22.64%	16.98%	24.53%
Baton Rouge, LA	20.75%	22.64%	16.98%	20.75%	18.87%

8. What are changes/improvements you would like to see implemented at the 2014 LATMC?

More agronomic information presented 73.91%  
More educational information presented 41.30%  
More technical information presented 43.48%  
Portrait of Consultant type presentations (personal experiences) 32.61%  
Exhibitor drawings for giveaways during refreshment breaks 10.87%

9. Do you want to see the 4-H and FFA students continue to have a part in our opening General Session?

4-H Yes 77.78%  
4-H No 22.22%  
FFA Yes 73.33%  
FFA No 22.22%

10. Overall, how would you rate the 2013 LACA sponsored Louisiana Agricultural Technology & Management Conference when compared to other ag meetings you attend?

Superior 16.98%  
Excellent 49.06%  
Above average 22.64%  
Average 7.55%  
Poor 3.77%

A few comments from the survey...

Q1: Too much time is devoted to dignitaries blowing smoke, who are usually too busy to attend and send an underling, and topics that have no relevance to our profession. We need to have a two day meeting instead of drawing it out to three days.

Q1: I have participated and attended for years. I am very satisfied with the format. If space is available, some roundtable discussion topics may be a thought.

Q4: I attend the meeting for the educational opportunity and to interact with other professionals in the field of agriculture. I like a meeting place that is centrally located with a reasonable cost.

Q4: I have never liked casino atmosphere and in Marksville there are no options for restaurants. At least in Alexandria, we could get away at night.

Q10: This is the best overall ag meeting I attend every year.

Q10: I would like to see the ag company representatives scattered throughout the program instead of just at the end of a session.

THANKS TO ALL WHO TOOK THE TIME TO COMPLETE THE SURVEY...



The Ray and Dorothy Young Endowed Assistantship in  
Louisiana Row Crop IPM

A special THANKS to all contributors...

Louisiana Agricultural Consultants Association  
Scott and Claudia Martin  
Clower Consulting Service (James P. Clower)  
John and Carolyn Kruse  
Ron and Mary O'Hanlon  
Grady and Barbara Coburn  
John Killmer  
Mr. and Mrs. Willie F. Cooper  
Patricia O'Leary  
Gary and Dixie Thompson  
Coxco Agricultural Services, Inc. (Bill Cox)  
Harold and Paula Lambert  
Louisiana Federal Land Bank Association  
Agricultural Management Services, Inc. (Roger Carter)  
Denise Wright  
Carol Pinnell-Alison  
Louisiana Cotton and Grain Association (Jess Barr)  
Dan and Myrtle Bradshaw  
Robbie Gwin  
Boyd Padgett  
David and Betty Boethel  
Chad Nelson  
Rogers and Thoy Leonard  
Dwayne Coulon  
Calvin Viator, Ph.D. & Associates, LLC  
Lakeland Planting Company (Ferriday)  
Paul Coreil  
One Grower Publishing, LLC  
Panola Company, Ltd.  
Balmoral Farming Partnership  
Kenneth Koonce  
Amvac Chemical Corporation (Paul Vaculin)  
Monsanto Company (Chism Craig)  
Richard G. Forsythe  
Ronnie Levy  
Jesse and Leslie Young  
Brooks Blanche  
Jim Thrift  
Valent USA Corporation (John Bordlee)  
Syngenta Crop Protection (Jeff Mink)  
Glenn Luedke  
Billy and Martha McLawhorn  
Jim Braucht  
Terral Seed  
E.F. Young (El Paso, TX)  
Tom and Melissa Rountree  
Ray and Dorothy Young  
Dow Foundation  
Tony and Marlene Young  
BASF Corporation (Marcus Grabert)  
L.A.M. Real Estate (Pontchartrain Investment Holdings, LLC)  
Howard Anderson  
FEAE (NAICC's Foundation for Environmental Agriculture Education)  
David J. Branch  
Ken Branch  
Everett Calloway

Ken Gregory  
Todd Ringle  
Lester Scott  
Craig DeGravelle  
Clay Fairbanks  
Dorwayne Glover  
Reynold Minsky  
Ashley Peters  
Lance Rodriguez  
Jeff Flynn  
Jim Griffin  
Al Broussard  
Knight Consulting Service (Todd Knight)  
Randy Richard  
Craig Moss  
Fred Collins



The LACA Executive Board wishes to thank all contributors and those who have continued to support the endowment annually.

The first assistantship has been awarded. Following is the announcement of the first recipient of the Ray and Dorothy Young Endowed Assistantship in Louisiana Row Crop IPM.

The LSU AgCenter and College of Agriculture are pleased to announce that Ms. Rebecca Melanson has been selected to receive the first annual endowed assistantship for Louisiana field crop IPM in honor of Ray and Dorothy Young. Rebecca is a Louisiana native and is currently a doctoral student in the LSU Department of Plant Pathology. Her PhD research (toxoflavin production in *Burkholderia glumae*, the causal agent of bacterial panicle blight of rice) is being directed by Dr. Jong Ham, a research scientist in that unit. Rebecca will receive an award of \$20,000 to support her research during this next year. **For more information on Rebecca, please review a summary of her application materials (to follow in this newsletter).** She also has developed a letter of appreciation to the LACA for the initiation and support of this prestigious award (also included in this newsletter).

For over half a century, Ray Young has quietly gone about his business, of contributing in his way to the success of agriculture. His efforts to improve the lives of farmers and their families across the U.S. have been done without ever seeking acknowledgement or accolades. Ms. Dorothy has been with him every step of the way as an active participant in his career accomplishments. Although many people personally are aware of his dedication, it is important to his friends and family that future generations of farmers, consultants, agricultural industry personnel, and students share in his legacy. Therefore, in a respectable attempt to acknowledge their dedication to Louisiana agriculture and the consulting industry, the LACA decided to develop a named award that will exist for future generations to enjoy.

The “Ray and Dorothy Young Endowed Assistantship in Louisiana Field Crops IPM” was initiated in 2010 by the LACA membership with considerable support from individuals, organizations, and agricultural industries across the US. This is an ongoing four year process to fully fund an award which will exist in perpetuity in the LSU College of Agriculture for a student pursuing a graduate degree in the disciplines of plant protection. This is a very unique form of recognition for a graduate student, and in fact, it is the only one of its kind in the College of Agriculture. The ultimate goal is to raise \$300,000 for a permanent investment and use the proceeds for this award. Although numerous contributions have been recorded, there is still work remaining to reach this goal. For those who wish to contribute to this award, please contact the LACA Executive Director, Denise Wright (*See contribution information on page 7 of this newsletter*).

Members of the Louisiana Agricultural Consultants Association,

I am delighted and honored to have recently been chosen as the first recipient of the “Ray and Dorothy Young Endowed Assistantship in Crop Integrated Pest Management”. This award will greatly benefit my doctoral program and professional development as it will provide support for the completion of my research on the “Characterization of a novel negative LysR-type transcriptional regulatory factor of toxoflavin production in *Burkholderia glumae*, the causal agent of bacterial panicle blight of rice”. The knowledge gained from this research will give scientists a better understanding of how the bacterial pathogen *Burkholderia glumae* causes disease in rice and will ultimately lead to the development of disease management methods that rice producers can utilize to prevent yield losses attributed to bacterial panicle blight.

The generosity of your association in initiating the “Ray and Dorothy Young Endowed Assistantship in Crop Integrated Pest Management” is greatly appreciated and will, with certainty, provide valuable educational and professional development opportunities for myself as well as for future recipients pursuing degrees in agricultural-related fields. Through this award, your association is helping to ensure the development of skilled future leaders in agricultural research and extension and to achieve sustainable agricultural production.

Though I only met with Mr. Young for a short time at the Louisiana State University Alumni Association Spring Banquet, it was evident that he thoroughly enjoys his work and has a very satisfying career. The fact that this award was named in honor of Mr. Young and his wife makes it clear that his work and service to others is highly valued and appreciated. It was truly an honor to meet Mr. Young and to receive the award from him. I hope throughout my career I am able to leave a positive impact on those around me just as Mr. Young has done throughout his career. I have big shoes to fill, but I look forward to many exciting and wonderful opportunities in the future.

Thank you, again, for creating this wonderful opportunity.

Respectfully,

Rebecca A. Melanson



## Ray and Dorothy Young Endowed Assistantship Application Rebecca A. Melanson

### Student Status and Degree Desired

I am currently a full-time graduate student pursuing a Ph.D. in Plant Health with a concentration in plant pathology in the Department of Plant Pathology and Crop Physiology at Louisiana State University under Assistant Professor, Dr. Jong Hyun Ham. I have completed my required classroom coursework for my approved Ph.D. program and have passed my general exam and earned the status of ‘Ph.D. candidate’.

### Career Goals

My previous work as a student worker at the LSU AgCenter Red River Research Station and as a plant pathology research associate at the LSU AgCenter Pecan Research-Extension Station provided me with first-hand experience in agriculture, plant pathology, research, and extension. These experiences showed me the value of agriculture and agricultural research. I also gained an appreciation for producers as I realized the difficulties that they endured in their work. In addition, my experiences provided me with insight into the skills necessary for a career in extension plant pathology and applied research. Most importantly, I gained valuable experience in identifying a problem, developing and designing experiments, performing applied field research, and interpreting new recommendations to producers. It was stimulating to hear producers ask questions about disease management and then thrilling to learn that some producers and agencies had begun to utilize methods developed to help manage the spread of those diseases. The joy that I experienced in working with producers and the quest for knowledge that will improve agricultural efficiency, especially disease management, continue to be forces leading me into a career in applied plant pathology and extension.

Therefore, it is my goal to obtain employment as an applied research and extension plant pathologist at an agricultural experiment station following my graduation from Louisiana State University. I hope to build a producer-focused research program that addresses not only basic scientific questions, but also questions related to the pathosystems that are important to stakeholders. Investigation into common and emerging issues faced by stakeholders and requiring study will be conducted through relationships with producers and with colleagues from land grant universities, government agencies, and private industries. I will use both laboratory and field experimentation to study the genetic basis of plant pathogens, as well as the interactions of these pathogens with their hosts and the occurrence and management of plant diseases in the field. I hope to then develop effective disease management strategies that will enable the production of the highest possible quality yield with producer profitability in mind.

While research on plant pathogens and their diseases will lead to the development of management techniques, these techniques will not benefit producers if not properly utilized. It will therefore be necessary to educate producers on the utilization and incorporation of these techniques into their current management programs. Change is difficult for many people, including producers. As an extension plant pathologist, I will work directly with producers to become a trustworthy source for information. I will also develop programs and extension resources to educate producers on proper disease management that will prolong the development of resistant pathogens and prevent the overuse of chemical treatments.

Furthermore, I hope to become more involved in scientific societies, such as the American Phytopathological Society, at the regional and national levels. By serving in leadership positions, I hope to promote collaborative research and active member involvement for the support of issues related to agriculture and research. I also hope to become more involved with local societies and organizations that seek to educate students and the public of the issues that we face in becoming an agriculturally sustainable and environmentally responsible world. As a child, I was not aware

of the importance of agriculture or of the impact of plant diseases on agriculture. By volunteering in school programs, I hope to increase student awareness and knowledge of agriculture and perhaps turn more students on to future careers in science, agriculture, and plant pathology. Through my involvement in research, extension, and service, I hope to build a successful career doing what I love while serving as a role model to others and making contributions to the advancement of science, agriculture, and plant pathology.

### Dissertation Research

My dissertation research is on the “Characterization of a novel negative LysR-type transcriptional regulatory factor of toxoflavin production in *Burkholderia glumae*, the causal agent of bacterial panicle blight of rice”. *Background* Rice (*Oryza sativa* L.) is the world’s most important food crop and serves as the basic dietary supplement for approximately half of the world’s population. Among the diseases affecting rice in the United States, bacterial panicle blight (BPB) is listed as a major rice disease and is one of the most important rice diseases in the south. This disease can cause severe yield losses in rice and is usually associated with unusually hot weather and high nighttime temperatures. In the southern rice-producing areas of the United States, severe losses and epidemics of BPB were experienced in 1995, 1998, 2000, and most recently, in 2010. There are currently no resistant rice varieties and no economically effective methods to control this disease in the United States. The major causal agent of BPB of rice is *Burkholderia glumae*, a bacterium that is becoming an increasingly important pathogen worldwide. Despite the increasing importance of BPB and *B. glumae*, scientists still do not have a clear understanding of this pathogen and how it is able to cause disease. Furthermore, only a few research laboratories throughout the world are focused on this pathogen. A number of recent studies by these research groups have shed some light on how this pathogen causes disease, namely, by identifying several virulence factors, including toxoflavin, lipase, flagella, and a type III secretion system, and regulatory factors for these virulence factors, including a quorum-sensing system, in *B. glumae*. Even with this knowledge, much information is still lacking about the factors and mechanisms that enable *B. glumae* to cause disease.

Of the known virulence factors of *B. glumae*, the toxin toxoflavin is the most important and well-studied. Other research groups have shown that a quorum-sensing system composed of an *N*-acyl-homoserine lactone synthase and its cognate receptor globally controls the expression of genes for toxoflavin as well as genes for other major virulence factors of *B. glumae*. In addition, two transcriptional regulators were shown to control the expression of genes for toxoflavin biosynthesis and transport. To better understand the regulatory network of *B. glumae* for bacterial pathogenesis, additional regulatory factors that determine the expression of virulence-related phenotypes, including toxoflavin biosynthesis, were identified. For this, transposon mutagenesis was performed on a virulent strain of *B. glumae*, 336gr-1, isolated from rice with BPB in the southern United States. Mutant derivatives displaying altered virulence-related phenotypes on various culture media were screened and selected for further study. Among the mutant derivatives selected, four that showed enhanced toxoflavin production and virulence were found to have mutations in the same putative open reading frame (ORF) encoding a LysR-type transcriptional regulatory family protein. This ORF that encodes a novel negative regulator of toxoflavin production was named *ntpR* for negative regulator of toxoflavin production LysR.

### Research Goal and Objectives

The goal of my research project is to characterize the function of *ntpR* that is a novel negative regulator of toxoflavin production in *B. glumae*. The following objectives will accomplish this goal:

1. to verify the function of *ntpR* by testing independent mutants of this gene and by complementing *ntpR* mutants with a functional *ntpR* clone;

2. to further characterize the regulatory function of NtpR on other known virulence factors, such as lipase, flagella, and a type III secretion system, and its relationship with other global regulatory factors, such as the quorum-sensing system;

3. to determine *B. glumae* genes regulated by NtpR by comparison of the transcriptomes in the wild-type and *ntpR* mutant backgrounds using an RNA-sequencing technique;

4. to verify the results of Objective 3 by using qRT-PCR to determine the expression levels of target genes in the wild-type and *ntpR* mutant backgrounds.

### Research Approach

In order to verify the phenotype associated with the mutation in *ntpR* (Objective 1), additional independent mutants, including a markerless  $\Delta ntpR$  mutant, will be created and complementation using a functional *ntpR* clone will be performed. The mutant derivatives and the complemented derivative will then be tested against the wild-type strain for toxoflavin production.

To further characterize the regulatory function of NtpR on other known virulence factors, and its relationship with other global regulatory factors (Objective 2), laboratory experiments will be conducted to test for the production of these factors in the mutant and complemented strains. Furthermore, constructs containing the promoterless *gus* reporter genes fused to the promoters of the genes in *B. glumae* known to have a role in toxoflavin production will be used to determine the location of NtpR regulation within the known pathway of toxoflavin regulation. While it is possible that NtpR regulates other genes in *B. glumae*, it is likely that at least one of the genes in the known toxoflavin production pathway is regulated by NtpR and will be identified through this reporter gene assay.

In order to expand our knowledge of the role of NtpR in *B. glumae* and determine additional genes that are regulated by NtpR (Objective 3), an RNA-sequencing technique will be used to obtain the transcriptome profiles of the wild-type (parent) *B. glumae* strain and an *ntpR* mutant strain. The transcriptomes of these strains will then be analyzed to determine genes whose expression levels are regulated by NtpR. qRT-PCR experiments will then be performed to validate the *ntpR*-dependent expression of genes shown to be regulated by NtpR in the transcriptome analysis (Objective 4). Priority in gene selection for validation will be given to genes encoding putative virulence factors and their regulatory components.

### Research Impact

Upon completion of these objectives, it is expected that the regulatory mechanism of toxoflavin production in *B. glumae* will be better understood. Especially, a more in-depth knowledge of NtpR’s role in the regulation of toxoflavin and other virulence factors will be gained. With this knowledge, we hope to present a revised regulatory pathway for toxoflavin production in *B. glumae* that includes NtpR and its location of regulation. The increased knowledge of the regulatory mechanism of toxoflavin production obtained from the completion of this research will contribute to a greater understanding of *B. glumae* and how it is able to cause disease and will help to develop effective disease control strategies that may potentially be used to combat disease caused by *B. glumae*. Since disease control strategies will help contribute to the future security and safety of one of the world’s most important food crops, this research project addresses the challenges of food security and sustainable agriculture. In addition, the knowledge gained of the regulatory factors and mechanisms identified in the production of toxoflavin in *B. glumae* may also help to determine regulatory mechanisms of other virulence factors in *B. glumae*, as well as in bacterial pathogens of both animals and plants, particularly other important *Burkholderia* species that are known to cause disease in humans.

*See page 7 for Endowment Contribution information...*



## Ray and Dorothy Young Endowed Assistantship

Tax-deductible contributions to the *Ray and Dorothy Young Endowed Assistantship in Louisiana Row Crop IPM* are encouraged and appreciated. Checks must be made payable to LSU Foundation with check memo indicating "Young Endowed Assistantship". Please mail checks to:

Denise Wright, Executive Director  
Louisiana Agricultural Consultants Association  
P.O. Box 104  
Morrow, LA 71356

Not only is this a tribute to two outstanding leaders, it's a very worthwhile investment in agriculture's future...Please consider sending your contribution today!



*Winners of the 2013 Crop Protection and Production Quiz sponsored by FMC Corporation and administered by Richard Costello.*

## 2013 Louisiana Agricultural Technology & Management Conference Revisited...



*Ray Young and Fred Collins visit with Lieutenant Governor Jay Dardenne following his interesting talk on 200 years of Louisiana history.*



*Honored to have the Honor Guard open our conference this year. Thank you, Members of the Buckeye High School Honor Guard!*



*Mike Straln, DVM, Commissioner of Agriculture & Forestry addresses our consultants and other guests during the opening day of our conference.*



*Randy Richard, LACA President-Elect presents the LACA County Agent Award to Mike Hebert. Congratulations, Mike!*



N  
E  
T  
W  
O  
R  
K  
I  
N  
G



*Chancellor Bill Richardson updates LATMC attendees on the goings-on of the LSU AgCenter.*

## 2013 LACA Scholarships Awarded

The recipient of the graduate scholarship was Ms. Carolina Avellaneda who is a Ph.D candidate in the Department of Plant Pathology and Crop Physiology at LSU in Baton Rouge.

She is a native of Bogota, Columbia. Carolina received her high school and undergraduate education in Bogota. During her undergraduate studies, she became interested in resistance as a method of plant disease control.

She began her career as an industrial microbiologist as an undergraduate intern, followed by her work with sugarcane viruses for eight years at the Columbian Sugarcane Research Center. In 2002, she was awarded a scholarship from the International Cooperation Agency to study the diagnosis and characterization of viral diseases in plants at an institute in Argentina. It was this experience that motivated her to pursue her Ph.D.

As an undergraduate, she became interested in the research of Dr. Jeff Hoy on resistance to brown rust in sugarcane. She decided to apply for her Ph.D studies under Dr. Hoy.

Carolina has received four fellowships and has a wealth of experience as an industrial microbiologist concentrating on plant diseases. She has authored or co-authored 15 publications on plant diseases.



*Pictured above: Dow AgroScience's Brook Blanche presents the graduate scholarship check to Carolina Avellaneda at the 2013 LATMC. Shown with Carolina is Dr. Jeff Hoy, her advisor.*

Josh Denison, recipient of the undergraduate scholarship is majoring in the College of Agricultural Sciences at McNeese State University in Lake Charles. He has a 3.4 grade point average. He graduated Magna Cum Laude and had a 3.95 average in his high school class.

He is the third generation on Denison Farms which is a rice, soybean and cattle operation located in Iowa, LA. Josh learned to farm from both his grandfather and father. He has spent many long hours in the fields and cattle pens. His grandfather taught him at a very early age how to plant crops, maintain them and check for plant diseases. His father is an executive agricultural manager who taught Josh about land management, crop rotations, production and marketing of rice, cattle, and soybeans.

Josh currently is a student worker in the Center for Advanced Meat Production. He also has worked as a carpenter with Denison Builders.

He has been extremely active in agricultural activities at all levels including state. He has won 15 awards and honors. In addition, he has excellent leadership skills and has been involved in FFA activities. Josh collects, sorts, and distributes food items for needy families in his community. He also helps prepare and serve food to families in homeless shelters.

One recommendor said of Josh: Josh will provide the next generation of Denison leadership in agriculture in Southwest Louisiana Agriculture. A retired Air Force colonel said of Josh: He would rank in the top 5% of all the Air Force and Navy officers I have supervised in my military career.



*Shown from left to right, Paul Templet, Chair of the LACA Scholarship Committee, and Ray Young presenting Josh Denison with the undergraduate scholarship check at the 2013 LATMC.*

### Welcome New Members!!!

Todd Knight joined the LACA as a Voting Member. Katie Authement, and Anna Meszaros joined as Associate Members. Herman Waguespack joined the association as an Affiliate Member. Welcome to all!!!

Louisiana Land Bank, ACA joined as a Gold Sustaining Member. We welcome them and appreciate their generous support!!! We welcome back A&L Analytical Laboratories as a Bronze Sustaining Member.

Bayer Bioscience changed to Bayer Seeds, and Agrilience changed to GreenPoint Ag. We appreciate all of our sustaining members' continued support!



For information on membership in NAICC  
go to [www.naicc.org](http://www.naicc.org) or  
contact Allison Jones at [JonesNAICC@aol.com](mailto:JonesNAICC@aol.com) or  
Denise Wright at [glpbues@bellsouth.net](mailto:glpbues@bellsouth.net)

**Affiliate  
Member of**



**NAICC**