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Against the Clock

Stress emergence in early-season corn planting



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Biocontained mortality composting is suitable for disposal of diseased cattle carcasses and manure; indiscriminate corn stover removal reduces soil fertility, soil organic carbon, and crop yields; planting soybean early does not provide a consistent advantage; and grain coatings affect nitrate and sulfate storage in sediments above the water table.

In this issue of *CSA News* magazine, Norman Borlaug, Christopher Dowsell, Bill Raun, and Ed Runge call for a generational recommitment to abolishing world hunger. See page 21.



Cover: As farm sizes continue to increase, so does the trend of planting corn earlier in most areas in the United States and Canada. More acres means more time needed to plant, which sets farmers against the clock in getting their corn in the ground so that it has enough time in the season to mature. At a recent conference, Pioneer scientist Imad Saab talked about some of the challenges of early-season corn planting and strategies for success. See page 4. COVER DESIGN: PAT SCULLION.

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As farm sizes continue to increase, so does the trend of planting corn earlier in most areas in the United States and Canada. More acres means more time needed to plant, which sets farmers against the clock in getting their corn in the ground so that it has enough time in the season to mature. Some growers choose early planting dates in order to plant fuller-season hybrids, which often carry a higher yield potential. Earlier planting can also help growers avoid potential late-season droughts and certain pest problems.

Current strategies for early-season corn planting were discussed by Imad Saab, who leads the seed science group in the Crop Genetics Research and Development department at Pioneer, during a conference held at Pioneer's Carver Center in Johnston, IA on 18–19 February. Dr. Saab said that the company has developed a stress emergence score for its corn hybrids to help growers manage early-

planting risks. Stress emergence, according to Saab, is the genetic ability to emerge and establish a stand under less-than-optimal conditions. The company assigns each hybrid a stress emergence score of 1 to 9. Higher scores indicate better suitability for early planting or planting into colder or high-residue seedbeds.

"Selecting the best planting date is the most critical decision growers must make to enable a crop to have a successful start," Saab said. "Growers should pay close attention to weather forecasts and consider specific field conditions and characteristics before deciding on a planting date."

Challenges with Early Planting

During the conference, Saab talked about some of the challenges farmers face with the early-planting trend. These include cold soils (generally less than 50°F), which can delay seedling emergence potentially up to four weeks, and severe cold or snow after

planting, which can reduce germination rates and result in poor stands. Corn grown under irrigation can also experience significant stress if the irrigation water is sufficiently cold.

"Knowing the history of your fields—what planting dates have worked, the soil type, and drainage characteristics—is very beneficial," Saab said. "Growers should consider waiting for warmer conditions before planting fields that are not as well drained or those with a track record of early-season insect pressure or seedling blights."

Saab cautions that growers may not pay enough attention to near-term forecasts. Those who plant ahead of an inclement weather event, such as snow or heavy rain, are typically at a higher risk of losing a stand to stress.

"We often hear of growers who speed up planting just ahead of a snowstorm to get the crop in the ground. There often are significant disadvantages to getting a crop in the

Against the Clock

Stress emergence in early-season corn planting



ground just ahead of a cold spell. The corn crop typically needs several days of good weather after planting for successful emergence. In fact, growers tell us they usually have better stands if they shut down the planter a day or two ahead of a cold event."

Typically corn does not germinate well if soil temperatures range much below 50°F or if seeds remain in cold, wet conditions for extended periods. As Saab pointed out, corn is a warm-season crop with tropical origins. When the dry seed imbibes cold water (typically 50°F or below), imbibitional chilling injury may result. The degree of damage ranges from seed death to abnormalities such as cork-screws or fused coleoptiles.

The potential for cold-water damage generally decreases as the seedlings emerge. It also decreases if the initial imbibition takes place at temperatures above 50°F. So early-planted corn that is followed by favorable weather may have better emergence than corn that is planted later and followed immediately by a cold spell or snow cover.

Another challenge with early planting is increased adoption of no-till and reduced tillage, which results in lower soil temperatures, more water retained in the crop residue, and slower seedbed drying. Although there are many advantages to these practices, the level of early-season stress has increased along with their adoption. Even in southern and western regions of the U.S., early-planted corn in these production systems can experience similar stress levels to those of colder northern regions.

In no-till or strip-till practices, the residue left from cornstalks from the previous year can hinder the seedling's ability to emerge successfully.

"A field with residue can impair emergence in several ways," Saab said. "The residue acts as a sunblock, which slows down soil warming and stand establishment. Residue also holds excess water, which can promote seedling disease. One way growers can help emergence in no-till is by using a residue cleaner on the planter to help warm the soil around the seed and push aside residue clumps."

In many areas, the combination of no-till and early planting has contributed to increased incidence of seedling disease since these conditions

"We're using biotechnology and molecular breeding tools to identify genes and molecular markers associated with stress emergence. We have made significant genetic improvements in this critical trait..."

hurt stand establishment severely, since corn has very little tolerance to flooding. Fields with better drainage can be planted earlier and give crops a better chance of being successful."

Saab said that choosing hybrids with good early-season stress tolerance can help minimize potential losses from planting early. He said that Pioneer puts all its corn hybrids through rigorous stress tests in multiple sites across North America.

"We plant our hybrids early in a range of stressful conditions including no-till and corn on corn. We also test our hybrids in proprietary lab stress tests designed to simulate highly stressful conditions.

Improving Stress Emergence with Genetics

Saab said Pioneer is making genetic improvements to better establish stands under stress.

"We're using biotechnology and molecular breeding tools to identify genes and molecular markers associated with stress emergence. We have made significant genetic improvements in this critical trait, and these tools are helping accelerate genetic gain for early-season stress tolerance."

One molecular tool that Pioneer is using is the doubled-haploid technique. "Haploid" refers to the number of chromosomes in a reproductive cell, like sperm or ovum. In grasses like maize, the reproductive cells—pollen and ovules—contain half the chromosomes of a full-grown individual. Fertilization joins the genetic information from the two parents, and offspring carry paired sets of chromosomes, reflecting the diversity of each parent.



Early corn planting in Minnesota, April 2008. INSET: Cold-damaged corn seedling. Images courtesy of Pioneer.

favor inoculum buildup and disease progression for certain fungi.

Fields with drainage problems can also cause germination stress. Those that drain better also warm up faster, which is much more conducive to rapid emergence and seedling growth.

"Growers planting corn early should try to plant well-drained fields first," Saab said. "Besides being typically colder, waterlogged fields can

Maize breeders working on hybrids must at some point create genetically stable and pure lines of desirable, individual plants, for use as parents of hybrids.

Conventionally, breeders get the lines by repeatedly fertilizing selected, individual maize plants with the plant's own pollen. This requires expensive field space, labor, and time—normally seven or more generations, which represents at least three years, even in settings where it's possible to grow two crops per season.

In the doubled-haploid technique, the first step involves crossing normal maize with special maize types called "inducers," whose pollen causes the normal maize to produce seed containing haploid embryos. The haploid embryo carries a single set of its own chromosomes, rather than the normal paired sets. Additional treatment of these seeds eventually results in a fertile plant with a doubled set of identical chromosomes.

"We have active programs to map the genes and molecular markers in the chromosomal regions and are

currently using this information to improve the new germplasm," Saab said. "There is really no one size fits all. There are targeted programs to identify the markers that are pertinent to breeding programs in most maturity zones."

Saab added that growers in southern states such as Kentucky and Texas demand products with strong stress emergence just as much as ones in northern regions such as Minnesota and the Dakotas. Regardless of the region, seedling pathogens such as *Pythium* and *Fusarium* are often more problematic in early-planting conditions if the seedlings are weakened by cold, waterlogging, or insect chewing, according to Saab. To combat this, growers should plant seed that is treated with a combination of fungicides that provides multiple modes of action for broad fungal control plus a seed-applied insecticide.

"Insecticide seed treatments have proven to be very effective at protecting stands in stressful environments," Saab said. "Although they are targeted against insects, they also

protect against seedling disease by reducing insect feeding and depriving fungal and bacterial pathogens of points of entry. These also provide effective control of secondary insects such as wireworms, seed corn maggots, and white grubs. However, our research has shown that higher rates of [insecticide seed treatments] may be needed to maximize control of these insects under heavy infestations. These insects tend to be active early in the season and can cause significant stand reductions, especially if emergence is slow due to stress."

Corn-after-corn fields can harbor pests more easily than rotated fields, Saab said. Growers practicing corn-after-corn rotations can increase their odds for success by reviewing hybrid stress emergence and high-residue suitability ratings for the 2009 growing season, especially when planting early. Pioneer offers several plant and seed technologies for controlling corn insects and diseases that increase in corn-on-corn production systems.



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Biocontained Mortality Composting is Suitable for Disposal of Diseased Cattle Carcasses and Manure

If foot-and-mouth disease were to break out in North American cattle feedlots, thousands of cattle carcasses and tons of infective manure would require disposal at each location. Traditional disposal methods such as rendering would not be able to handle the volumes required while other methods such as burial or burning may cause excess environmental contamination and possibly further spread the pathogenic organisms. Although mortality composting has been used to dispose of chickens and turkeys during outbreaks of avian influenza, there has been little study on inactivation of pathogenic organisms in cattle mortality compost. As well, degradation of cattle carcasses is more challenging due to greater carcass size.

A group of scientists with Alberta Agriculture and Rural Development and Agriculture and Agri-Food Canada at the Lethbridge Research Centre worked in collaboration with scientists at the Canadian Food Inspection Agency in Ottawa to inves-

tigate pathogen inactivation, degree of containment, and carcass degradation in cattle carcasses composted under containment. Containment structures were constructed of straw bales that were lined in plastic. Perforated plastic pipes were used for passive aeration, and 16 carcasses per structure (average weight of 343 kg) were composted over a 40-cm layer of loose barley straw and under a 160-cm layer of feedlot manure. Triangular cages of steel were embedded within the compost and used for periodic retrieval of samples of animal tissues and manure inoculated with *E. coli* O157:H7, *Campylobacter jejuni*, or Newcastle Disease virus. Results from the study were published in the March–April 2009 issue of the *Journal of Environmental Quality*.

The study found that *E. coli* O157:H7 and New Castle Disease virus were both rapidly inactivated in mortality compost (within seven days) while *C. jejuni* showed a greater than 6 log reduction over the composting period. Tissue samples were

rapidly degraded, and minimal odor was produced by the compost. Residual bones and tissues present after 147 days of biocontained composting were eliminated by moving the compost into open windrows and turning the compost every two months for an additional six months. Cured compost was then suitable for land application.

As materials used for compost construction were inexpensive and available to most beef feedlots, the authors conclude that biocontained mortality composting would be suitable for disposal of cattle carcasses and manure in the event of a foreign animal disease outbreak. The system developed could be used for de-population of feedlots with thousands of cattle provided that sufficient space and manure were available. A remaining question regarding mortality composting cattle would be the fate of prions during active composting. Research to address this issue is ongoing at the Lethbridge Research Centre.

Xu, W., T. Reuter, G.D. Inglis, F.J. Larney, T.W. Alexander, J. Guan, K. Stanford *et al.* 2009. A biosecure composting system for disposal of cattle carcasses and manure following infectious disease outbreak. *J. Environ. Qual.* 38:437–450. View the full article at <http://jeq.scijournals.org/content/vol38/issue2>



Construction of biocontained compost showing aeration pipes and carcasses on straw prior to covering carcasses with 160 cm of manure.



Indiscriminate Corn Stover Removal Reduces Soil Fertility, Soil Organic Carbon, and Crop Yields

Production of cellulosic ethanol is expected to increase substantially in the near future in the quest to reduce both excessive dependence on fossil fuels and net emissions of greenhouse gases. Among the potential cellulosic feedstocks are crop residues such as corn (*Zea mays* L.) stover, perennial warm-season grasses, and short-rotation woody crops. At present, corn stover is being considered the main feedstock source for producing ethanol because other alternative feedstock sources are not

yet readily available. Cellulosic ethanol has more potential than grain ethanol in the long term, and it will soon become a reality as technologies for the conversion of cellulose into liquid fuels are being refined and cellulosic ethanol plants are being built.

Producing ethanol from renewable energy sources is a plausible endeavor. The concern, however, is that high rates of corn stover removal as biofuel may adversely impact soil productivity and environmental quality. Experimental data on the impacts of

stover removal are needed to establish threshold levels of stover management.

In the March–April 2009 issue of *Soil Science Society of America Journal*, Humberto Blanco and Rattan Lal from the Ohio State University document the four-year impacts of systematic removal of corn stover from long-term no-till systems in Ohio on soil structural stability, soil organic carbon (SOC), soil nutrient concentrations, and grain and stover yields across three contrasting soils (Rayne silt loam with a 10% slope, Celina silt loam with a 2% slope, and Hoytville clay loam with <1% slope). Stover was removed at rates of 0, 25, 50, 75, and 100% after harvest for four years.

Results of the study revealed that stover removal at rates as low as 50% reduced SOC concentration by, on



Crop residue removal increases the soil's susceptibility to cracking, crusting, surface sealing, and compaction.

average, 5.5 Mg ha⁻¹ while complete stover removal reduced the total N concentration by nearly 0.82 Mg ha⁻¹ in silt loams in the 0- to 10-cm soil depth after four years of stover removal. Complete stover removal also reduced available P, exchangeable Ca²⁺ and Mg²⁺, and cation exchange capacity on the sloping silt loam. In the nearly level silt loam and clayey soils, stover removal at rates as low as 25% reduced the stability of aggregates. Stover removal at 50% reduced, on average, grain yield by 1.8 Mg ha⁻¹ yr⁻¹, and 100% removal reduced it by 3.3 Mg ha⁻¹ yr⁻¹ in the last three years of stover management in the sloping soil.

The authors conclude that indiscriminate stover removal for expanded uses degrades soil structure and reduces soil fertility, soil organic carbon concentration, and crop yields. Residue return after harvest is essential to elemental recycling, improving soil structure, maintaining favorable soil temperature and moisture regimes, improving biotic activity of soil fauna

(e.g., earthworms), and sustaining grain and biomass yields, according to the authors.

The short-term stover removal impacts were soil specific. Stover removal had the most adverse impacts on the sloping and erosion-prone soil. Stover removal did not reduce crop yields in the nearly level silt loam and clayey soils in the short term, but aggregate stability was reduced in both soils with stover removal above 25%.

"Based on these results, only a fraction of stover produced can be harvestable as biofuel from these soils, and only about 25% of stover might be available for removal based on the needs to maintain SOC levels and structural stability," Blanco says.

Further long-term monitoring of impacts is warranted to conclusively establish the threshold levels of stover removal for these soils, the authors say.

Research is ongoing at the Ohio State University, and similar studies are needed in other regions with different soil and climate characteristics

“Based on these results, only a fraction of stover produced can be harvestable as biofuel from these soils, and only about 25% of stover might be available for removal based on the needs to maintain SOC levels and structural stability.”

to objectively consider the effects that a high removal of stover may have on soil quality, gaseous emissions, erosion and nonpoint source pollution, and crop production at regional and national scales.

Blanco-Canqui, H., and R. Lal. 2009. Corn stover removal for expanded uses reduces soil fertility and structural stability. *Soil Sci. Soc. Am. J.* 73:418–426. View the full article at <http://soil.scijournals.org/content/vol73/issue2>

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No Consistent Advantage for Planting Soybean Early

Planting soybean on the optimum date produces maximum yield and profit without increasing production costs. Unfortunately, the optimum planting date is hard to identify because it varies from year to year, depending upon the weather and how much it rains and when it rains.

Planting date has been a favorite topic of researchers ever since soybean was introduced into the U.S., so there is a large data base of experiments in the literature. A combined analysis of this data base would provide a clearer picture of the average response than any single experiment.

Scientists at the University of Kentucky analyzed the combined results of planting date experiments from the Midwest, the Upper South, and the Deep South. Planting dates varied from mid-April (early April in the Deep South) to July. The experiments included varieties from maturity groups 00 through VIII and several row spacings, but none were irri-

gated. They were published between 1960 and 2005 with 40% published after 1990. No experiments involving the Early Soybean Production System (ESPS) in the South were included in the analysis. Regression analysis (linear plateau model) was used to estimate the average response of yield to planting date. Results of the analysis were published in the March–April 2009 issue of *Agronomy Journal*.

In spite of the differences in environmental conditions and varieties from the Midwest to the Deep South, the response of yield to planting date was remarkably consistent across the three regions. Average yield did not change as planting was delayed from mid-April until late May or early June. Thus, there was no evidence that April plantings produced higher yields in any of the three regions. Early April plantings were included in the Deep South, and average yields decreased for these ultra-early plantings.

While the results of this analysis show no consistent yield advantage for planting early, there was also no consistent yield loss (except for ultra-

early plantings in the Deep South) associated with early plantings. According to the authors, if the soil is ready for planting in April, producers should feel free to plant, but they shouldn't expect higher yield. Planting into cold, wet soils, however, can reduce seedling emergence and stand, which may require replanting to avoid yield loss. Unacceptable stands may be more common if seeding rates are reduced to the minimum to reduce seed costs.

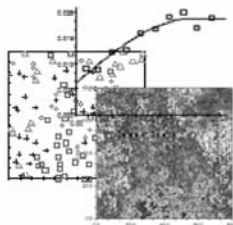
Average yield declined rapidly when planting was delayed after 30 May in the Midwest, 7 June in the Upper South, and 27 May in the Deep South at rates ranging from 0.7 (Midwest) to 1.1 (Upper South) and 1.2 (Deep South) percentage points per day. At these rates, delays of just two weeks will reduce yields by approximately 10 to 20%, the authors say.

While there may be no particular advantage for early planting, there was a clear disadvantage for planting late, after the critical date in late May or early June. The authors recommend that soybean producers make sure planting is completed before the critical date in order to maximize their yield and profits.

Egli, D.B., and P.L. Cornelius. 2009. A regional analysis of the response of soybean yield to planting date. Agron. J. 101:330–335. View the full article at <http://agron.scijournals.org/content/vol101/issue2/>

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Planting soybean early often results in larger plants, but larger plants do not necessarily result in higher yield.





Grain Coatings Affect Nitrate and Sulfate Storage in Sediments above the Water Table

The mineral composition of coatings on sediment grains in the unsaturated zone (the zone between land surface and the water table) can have a substantial effect on the retention of nitrate and sulfate, according to a new report in the February 2009 issue of the *Vadose Zone Journal*. The U.S. Geological Survey (USGS) scientists who authored the report say that these findings are particularly important for evaluating the long-term effects of agriculture on water quality because the storage of these common components of fertilizer in the unsaturated zone can affect the quality of shallow ground water for many years after fertilizer application ceases.

Nitrate and sulfate are important plant nutrients. Farmers and soil scientists routinely monitor the nutrient content of the soil underlying farm fields so that fertilizer application can be managed to maintain profitability and to minimize runoff or infiltration.

Loss of excess nutrients can elevate levels in streams and shallow ground water. Understanding the mechanisms of nutrient storage in the unsaturated zone is critical to protecting ground-water resources.

"The unsaturated zone is potentially a large reservoir for anions (negatively charged ions) like nitrate and sulfate, explains Timothy Reilly, the lead author of the study. "The increased residence time indicated by these findings suggests that models in areas with similar mineral characteristics, which neglect or minimize storage, will not accurately predict nutrient transport to the water table."

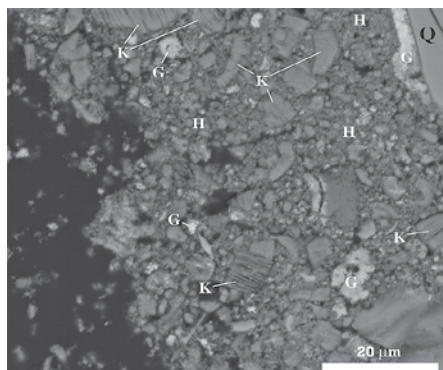
In the study, unsaturated-zone sediments and the chemistry of shallow ground water underlying a small (about 777 ha) watershed in southern New Jersey were studied to identify mechanisms responsible for nutrient storage. Lower unsaturated-zone sediments and shallow ground-water samples were collected at 11 locations,

"The increased residence time indicated by these findings suggests that models in areas with similar mineral characteristics, which neglect or minimize storage, will not accurately predict nutrient transport to the water table."


and concentrations of nitrate and sulfate were determined. Nutrient storage in the very fine-grained mineral coatings on the sediment grains was attributed to a complex combination of chemical and physical storage mechanisms.

Continuing research includes characterizing stream sediments, determining relations between sediment mineralogy and the concentration of pesticides stored on the sediments, and evaluating storage mechanisms in laboratory experiments.

Reilly, T.J., N.S. Fishman, and A.L. Baehr. 2009. Effect of grain-coating mineralogy on nitrate and sulfate storage in the unsaturated zone. Vadose Zone J. 8:75-85. View the full article at <http://vzj.scijournals.org/content/vol8/issue1>



This scanning electron microscope image is a cross-sectional view of a small portion of a quartz grain (Q) from sediments in the unsaturated zone (only the edge of the quartz grain is shown in the upper right corner). The fine-grained mineral coating on the quartz grain occupies most of the image. Various minerals [kaolinite (K), goethite (G), and halloysite (H)] are visible within the coating.




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If you are planning on submitting an abstract for this year's Annual Meetings in Pittsburgh, PA, please make sure your submission is completed and paid for by Friday, 24 April at 11:59 pm Eastern Time. At 12:01 am Eastern Time on Saturday, 25 April, the abstract fees

will increase from \$45 to \$60 for regular member submissions and from \$25 to \$40 for student submissions.

The deadline for all submissions is Tuesday, 5 May at 11:59 pm Eastern Time. This year, there is only one deadline for abstracts, so make sure your information, including complete abstract text, is submitted by 5 May. Last year, authors submitted on one date and still had time to edit their submission, but that is not the case this year—there is only one deadline for both submitting and editing your abstract.

To submit abstracts, go to www.acsmeetings.org/poster-oral-papers.

Two New Symposia Announced for Pittsburgh Meetings

Emerging Contaminants: Interactions with Mineral Surfaces, Environmental Transport, and Bioavailability

This symposium, co-sponsored by Divisions S2, S9, and S11, explores the fate and transport of emerging contaminants, such as pharmaceuticals, hormones, and personal care products in soils, natural water bodies, and manure-, biosolid-, and wastewater-amended lands. Three sessions are planned.

1. Interactions with soil minerals, examining sorption and transformation of emerging contaminants on soil mineral surfaces.
2. Environmental occurrence and transport, focusing on occurrence, transport processes, and models of movement of emerging contaminants in water and soil as well as other environmental media.
3. Bioavailability, dealing with uptake of the effective species of emerging contaminants from water and soil by microorganisms and plants. This also includes uptake of emerging contaminants by vegetables and other crops where biosolids or wastewater are applied as soil amendments.

The symposium organizers invite participation by all who are interested in the topics. Those who wish to contribute to one or more of the sessions are encouraged to contact one of the three symposium organizers—Michael Thompson (S9; mlthomps@iastate.edu), Hui Li (S2; lihui@msu.edu), or Satish Gupta (S11; gupta002@umn.edu)—to discuss possible topics and presentations.

Agricultural, Environmental Issues in China

China has a dynamic and rapidly expanding agricultural economy, one that faces a wide and diverse range of agri-environmental problems. Food security and safety,

soil erosion and degradation, ground and surface water quality, greenhouse gas emissions, trace metal contamination in soils, and nutrient management for fertilizers and animal manures are some of the most pressing agricultural challenges facing China as the 21st century begins. In some areas of the country, contamination of soils by metals and organics from municipal and industrial activities has also become a serious problem.

Two symposia will be held in Pittsburgh to engage leading Chinese scientists with colleagues from throughout the world in discussions of science-based solutions to these complex agri-environmental problems.

The first symposium, "Integrated Solutions to the Soil and Agri-Environmental Challenges Facing China in the 21st Century," will be held on Monday, 2 November and will be broadcast live to universities and research centers in China and other countries via the internet. Co-sponsors include Divisions A5 and S11 and the Association of Chinese Soil and Plant Scientists of North America (ACSPNA). Keynote presentations will be published as a special section in the *Journal of Environmental Quality*. For more information, contact the co-convenors, Dr. Tom Sims of the University of Delaware (jtsims@udel.edu) or Dr. Fusuo Zhang of China Agricultural University in Beijing, China (zhangfs@cau.edu).

The second symposium, "The Role of Science in Environmental Pollution and Climate Change—A Dialogue Between the U.S. and Sino Scientists," will feature speakers from China and the U.S. with topics covering soil and water pollution control and climate change/carbon sequestration. It was initiated jointly by the Environment and Public Health Network for Chinese Students and Scholars and ACSPNA. For more information, contact the co-convenors, Dr. Zhenli He of the University of Florida (zhe@ufl.edu) or Dr. Kai Xue of University of Oklahoma (kx36@ou.edu).

A volunteered poster session is also being planned to complement the two symposia. Information on how to submit posters related to the themes of these symposia can be obtained by contacting the convenors.

Nelson Retires after 38 Years with ASA–CSSA–SSSA

On 31 March, the headquarters staff will be saying goodbye to long-time employee Linda Nelson. Thirty-eight years ago, she was hired by then Executive Vice President Matt Stelly to type galley proofs for the Societies' newest journal—the *Journal of Environmental Quality*. For the first 15 years, she worked from home using an IBM Selectric Composer, which was the first desk-top typesetting machine.

"You had to type everything twice," Nelson recalls. "You typed it on one side of the sheet, and then it gave you a reading. Then you set your dial, tabbed over, and typed it again, and it would justify it."

After they were accepted, manuscripts were sent to the headquarters office where staff editors would mark them up with changes. Nelson would then type these marked-up manuscripts into galley proofs, which were then Xeroxed and mailed to the authors for proofing. When the galley proofs came back to headquarters with corrections, Nelson would type up those corrections, which were then cut and pasted into the master galley proof by the staff artist. Then the galley proofs were cut and pasted into pages that included the tables and figures and were sent off to a printer to be photographed. Final offset printing plates were then created from the camera's negative.

After seven years, Nelson began working with a Compugraphic Compuwriter phototypesetter. The machine

would project light through a film negative image of an individual character in a font through a lens. The lens would magnify or reduce the size of the character onto film, which would collect on a spool in a light-tight canister. The film would then be fed into a machine that would pull it through some chemicals before it would emerge ready to be pasted into pages.

"It was this huge machine, and you could only see one line as you were typing it," Nelson explains. "It justified your copy automatically, so I didn't have to type things twice, but because you could only see one line at a time, you learned to become a very accurate typist. You could change something within that line, but once that line was off your screen, it was gone."

Then came the Compugraphic MCS, according to Nelson.

"This made things a lot easier because you were able to save your work on disc, so that was a major change there. We went from typing it twice, to typing it once, to being able to save our work."

While the technology has changed, some things have remained the same. Nelson admits that tables and figures



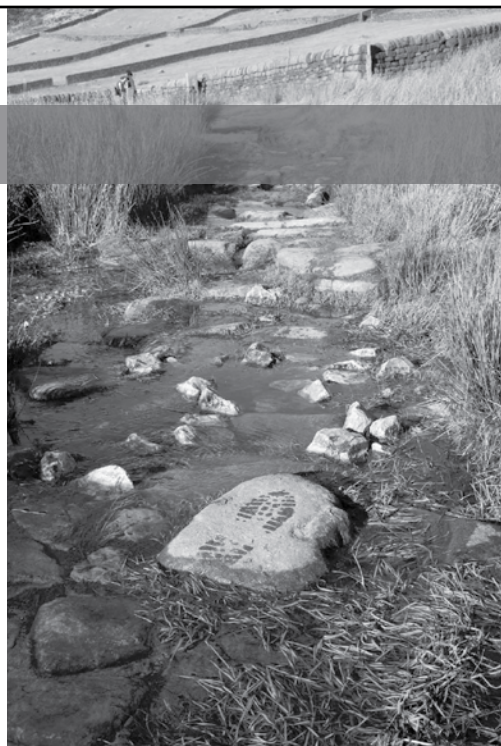
Linda Nelson

Call for Abstracts

ASA–CSSA–SSSA
International Annual Meetings
November 1–5, 2009
Pittsburgh, Pennsylvania

To submit an abstract go to:
<https://www.acsmeetings.org/poster-oral-papers>

Submission Closes
May 5, 11:59 pm, Eastern Time



Footprints in the Landscape: Sustainability through Plant & Soil Sciences

were often the least enjoyable part of her job back then, and our staff editors today would say that's still true.

"I used to spend so much time typing figure labels because these figures would come in a mess, and then the [staff artist] would paste them into the figure. There was a lot of time wasted on paste up!"

The cut-and-paste process soon became obsolete when PageMaker hit the shelves in the 1980s. It allowed for typesetting and page layout to be done in the same program. Users could also easily incorporate graphics into their page and create some graphics that previously had to be drawn by hand. Typesetters like Nelson were very thankful for this new technology, even if they themselves felt a little underappreciated at times.

"I always considered typesetting a thankless job because you never talk to anybody. The only person you ever talked

to was the staff editor. You never had any contact with members and very seldom talked to anybody outside the office."

From Publications to Meetings

That changed about five years ago when Nelson began working in the Department of Meetings and Conventions, which allowed her to interact much more with members.

"That was the biggest change, and I really enjoyed it because it seemed more rewarding being able to talk to other people. I got to know some of our members well and enjoyed working with them."

According to Keith Schlesinger, director of the department, Nelson became a teacher of sorts.

"Each year about 30 'students' (division chairs) would enroll in her Program Planning 101 class, and she did remarkably well year after year getting the division chairs to have a solid understanding of the program planning process," Schlesinger says. "She also did a commendable job in helping members with questions pertaining to The Conference Exchange database system."

Nelson also helped answer typesetting questions for staff members who were learning the trade.

"Linda's page layout experience was invaluable when we were transitioning *CSA News* from a newsletter to a magazine," says Matt Nilsson, managing editor of *CSA News* and *Crops & Soils*. "I was just learning how to use the software at the time, and she helped me with that as well as with some problems that we were having with fonts and colors."

Nelson says the move from publications to meetings was relatively smooth because every year she typeset the program book and was largely familiar with the structure of the meetings and the terminology. But she admits that it was definitely a different field of work for her. One thing, however, remained the same—deadlines.

"My life the last 38 years has revolved around deadlines. I always had to work my vacations around a deadline. To get two weeks off to see our son in Washington was always kind of difficult, and now we can take three if we want. I'm really looking forward to it."

So, will it seem kind of strange the first year of retirement, not having to make those deadlines?

"I think I'm going to be able to get used to it," Nelson laughs. "I plan on doing whatever I want whenever I want. [My husband Harley and I] plan to be able to enjoy our house up north [in Trego, WI]. I'm going to really be able to enjoy my garden and do more traveling."

"Linda has made significant contributions in the Department of Meetings and Conventions," Schlesinger says. "We wish her and Harley the best in the years ahead. No more deadlines, Linda!"

Meet the Staff: Cassie Mescher



Cassie Mescher will be replacing Linda Nelson, who is retiring this month, as Meetings Assistant in the Department of Meetings and Conventions. Following is a short Q&A with Cassie.

Tell us about yourself

I grew up in Minnesota and moved to Wisconsin to attend the University of Wisconsin–Madison. I graduated in 2007 with a B.S. in Life Science Communications.

Tell us about your job

As the new Meetings Assistant, I will serve as the lead contact for the Entomological Society of America and as backup for the Annual Meetings. I will also work closely with the Conference Exchange staff and handle all correspondence with the division chairs.

Share with us one part of your resume

After graduating from college, I spent time in the Marshall Islands (a small country in the Pacific Islands) teaching an English camp at the Majuro Co-op. It was a beautiful place full of new experiences, happy people, and kids eager to learn. I had an amazing time!

What do you like to do in your free time?

I enjoy running and playing ultimate Frisbee, tennis, and indoor soccer. I also love hiking, but won't be caught doing it without binoculars because bird watching is one of my favorite hobbies. I'll always make time to hang out with my friends, family, and of course, my cats.

CSSA President's Message

Goals Worthy of Reaching

by Kenneth H. Quesenberry

As I am writing this, I am also celebrating my birthday (send me an email and I'll tell you how many), and such milestones can cause one to reflect on both the past and future. Looking back for me involves clear remembrances of influential teachers and mentors who challenged me to extend myself beyond my own expectations. But looking forward today is much less clear with concerns about the economy, education funding, CSSA activities, and even personal issues like future retirement and life focus. This inspired me to think about some personal goals and to revisit some of the goals we have set for CSSA.

A recent service at our church included a special rendition of the song *Go Light Your World* written by Kathy Troccoli. The chorus lyrics are

*Carry your candle, run to the darkness;
Seek out the hopeless, confused, and torn;
Hold out your candle for all to see it;
Take your candle, and go light your world.*

Although written with a missionary emphasis, these words also can help to clarify our focus and goals for the future both individually and for CSSA. They serve as a reminder that one of the most important things we do as crop scientists is offer hope of a better future for the world by ensuring a continuing reliable supply of food, feed, fiber, and fuel.

Some would say that the heyday for crop science was in the 1970s and 1980s when research programs around the world were continually expanding along with crop yields and food supply. These naysayers

would also say that CSSA is now aging and out of touch with contemporary science as we again seem to be coming to grips with world food shortages in an economic downturn where faculty numbers are being slashed. My view is that this is the time, more than ever, for CSSA members to "carry the candle" of crop production expertise to all the world's citizens. What are you doing to "go light the world?"

Get Involved

Let me make a suggestion: Get involved—locally, nationally, and globally! On the local front, let your voice be heard with your local and state legislators who are making budget-cutting decisions. Remind them that eliminating agricultural research programs built over de-



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“My view is that this is the time, more than ever, for CSSA members to ‘carry the candle’ of crop production expertise to all the world’s citizens. What are you doing to ‘go light the world?’”

cedes is a false economy and that in fact research is a revenue generator and not a cost. Get involved with the local schools and media and deliver the message that our profession really does “feed the world.”

On the national front, CSSA is already engaged with science policy, but we need more members engaged with national policy makers. Karl Glasener, our director of science policy, has been proactive in keeping the voice of CSSA and our sister societies fully engaged with the new Congress and administration, supporting increased funding for the Agriculture and Food Research Initiative (AFRI) and supporting a conservation initiative with USDA. Likewise, members must be proactive by adapting to changed budget priorities and ensure that our science is at the forefront in areas such as bioenergy,

sustainability, and a renewed focus on modern plant breeding.

On the global front, in 2009 we will focus some of our energy on enhancing the global impact of our science. In 2006, CSSA developed a strategic plan as a road map for our activities—including our Big Audacious Goal: “CSSA will be recognized as the global resource for integrated plant science knowledge!” Collectively, we will do this by reaching out to our international members, the international agricultural research centers, and various governmental agencies that need our members’ input into critical policy decisions.

Now I can hear some of you saying, “Ken, I’m about the same age as you...what can I do at this stage of my life for global agriculture?” My response is why not look for opportunities globally? CSSA has decades of member expertise that can impact global crop production. Why should we not use it to “light the darkness” of the global stage?

Working for You

Your executive committee and board of directors are also focusing on the economic constraints we are all facing to ensure CSSA’s financial stability. Through the alternative

revenue task force that was implemented last year by Past President Bill Wiebold, we are seeking to identify new sources of revenue to keep CSSA financially sound in a changing economic climate.

We are also proactively addressing member needs, and CSSA members will have an opportunity to engage with our newest provisional division: Division C9—Biomedical, Health-Beneficial, and Nutritionally Enhanced Plants. CSSA is focused on a redesigned website to enhance member services and is looking at any new technologies for communications—especially during the Annual Meetings—that are “member friendly.”

The deadline for Annual Meeting abstract submissions is looming (5 May). Let me encourage all members to look carefully at the topical sessions your program planning committee has developed, identify where your research best fits, and submit your work. This pre-submission topic development is an attempt to better structure our meeting programs to enhance the meeting experiences of our members.

Please communicate your ideas about this new system to your division program chairs as we continue to seek to improve our Annual Meetings. Let’s make the 2009 meeting one of the best ever—even in tough economic circumstances. If you have other meeting ideas, contact Joe Lauer (jglauer@wisc.edu) or me (clover@ifas.ufl.edu).

One of my tasks over the past year as CSSA president-elect was to appoint members to the various committees that really are the lifeblood of our Society. I want to thank all of you who have willingly said “yes” when asked to serve, and I encourage all members to continue to volunteer to help guide CSSA into the future. As CSSA members, what better goal could we have than each of us doing our part to ensure that the CSSA purpose statement of **Plant Science for a Better World** becomes a reality?

K.H. Quesenberry, CSSA President; clover@ifas.ufl.edu or 352-392-1811 ext. 213.



Regulatory role of soil resources in plant and ecosystem responses to global change

The productivity and function of plants in both natural and agricultural ecosystems are primarily constrained by suboptimal soil resource availability. Water and N deficit are major limitations to plant growth on earth and most terrestrial vegetation is supported by weathered soils with some combination of low P, low Ca, Al toxicity, and Mn toxicity. The influence of climate change on plant resource acquisition and utilization is important yet complex, and poorly understood, making it difficult to predict how future climate scenarios may impact plant function and ecosystem processes they influence. This symposium will synthesize current concepts, emphasizing knowledge gaps and research priorities. Session topics include the rhizosphere, whole plant responses, ecosystem processes, and agroecosystems. The symposium will feature invited talks by nearly two dozen leading experts, as well as poster and oral presentations by meeting participants. For further information see: <http://plantbiosymposium.psu.edu>.

ASA President's Message

ASA-ICCA and Climate Change

by Mark Alley

Climate change has been the topic of a lot of discussion for some time within the scientific community, major media sources, the public at large, and our government. Many ASA-CSSA-SSSA scientists have contributed to the body of research about potential carbon sequestration in soils (both within managed and natural ecosystems), reducing greenhouse gas emissions from managed soils, and changes in plant communities that have occurred or might occur with changing climates. Governments, corporations, and individuals in different parts of the world have begun to address climate change through various actions to limit greenhouse gas emissions, sequester carbon, and mitigate or take advantage of potential climate changes.

Major efforts to address climate change in the United States are taking shape in the form of proposed legislation in the newly elected Congress. In particular, several legislative proposals in recent years to reduce greenhouse gases in the atmosphere have utilized croplands, pasture lands, and forests to sequester carbon that would be used

as "offsets" for emission of CO₂ from other sources. Other legislative proposals have excluded the use of these managed lands for offsets of CO₂ emissions. The leadership of ASA and ICCA have been in close contact with our science policy office in Washington, DC about these matters, and it was determined that various groups needed to be aware of the potential contributions that ASA and ICCA could make to legislative proposals on climate change.

In February, ASA President-elect Fran Pierce, ICCA Chair Howard Brown, ICCA Chair-elect Jim Smith, and I along with Luther Smith from the headquarters office and Karl Glasener, Caron Gala, and Laura Murphy from the science policy office met with various legislators, legislative aides, legislative committee staff, and staff from numerous organizations such as The Fertilizer Institute and the Environmental Defense Fund. The purpose of our meetings was to inform these diverse groups of the scientific expertise of our members and the well-educated, experienced, and established advisers in our ICCA program.

Our message was that our scientific members can contribute high quality science to any type of program that is being considered and that our certified crop advisers



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“...I think that it is critically important that policy makers be aware that any program addressing climate change mitigation must be science based...and that ASA (as well as CSSA and SSSA) have the individuals to provide that science...”

can rapidly implement programs associated with climate change and land use. Our group was well received by all individuals and organizations, and some have already followed up with us by asking for our comments on various ideas and issues.

I do not expect that we (ASA-ICCA) will endorse any particular climate change legislation being considered. However, I think that it is critically important that policy makers be aware that any program addressing climate change mitigation must be science based in order to have a chance for success and that ASA (as well as CSSA and SSSA) have the individuals to provide that science when land management issues are considered.

Also, these meetings clearly pointed out to me that our ICCA program offers something no other group can offer with respect to climate change and land management, and that is approximately 13,000 certified individuals who have established ties to land managers (~70% of crop land in North America), know the basics of soil science and crop management, and can be rapidly informed and trained about new issues. Our Society is truly unique in the potential that we offer in discussions of and solutions to the issue of climate change and land management.

Our officers, boards, and staff are committed to staying abreast of the climate change issue and finding ways to provide solutions. I urge each member to contact his/her congressional representative and senators to let them know about ASA and the ICCA program. In the past year, I have spoken to my legislators and have been impressed with the consideration they have for their constituents, especially constituents who can offer expertise on a specific issue. Most of these legislators and their staff lack training in land management and environmental issues, and I believe they are truly looking for solutions that are science based and have the potential for implementation. Constituent views and help with deciding how to approach these issues will be welcomed.

Our science policy office has prepared tips about writing letters, emailing, calling, and visiting your legislator to share your expertise and views with him/her. This information can be found on the ASA website at www.agronomy.org/sciencepolicy/tools. ASA and ICCA are uniquely positioned to make a strong contribution to discussions and policies associated with climate change, and I look forward to seeing the outcome of our members' and Society's efforts.

M. Alley, ASA President; malley@vt.edu or 540-231-9777.

Facing Future Food Needs

(continued from page 20)

ents and meet their production and environmental goals. The core concept of BMPs for fertilizer is to apply the right nutrient source at the right rate, time, and place. This “4R” strategy is central to improving fertilizer use efficiency and to agriculture’s ability to meet production needs without jeopardizing environmental quality. And it can be adapted to all kinds of farms—from subsistence farming to precision agriculture.

IPNI is currently supporting more than 150 research projects worldwide; over 70% of those are outside North America. This research feeds scientific information into cropping systems to better enable those systems to produce more food, as my colleague Dr. Paul Fixen, IPNI senior vice president and director of research, explains:

“We are in the process of initiating a global study on maize nutrition as part of our effort to increase food security. Maize is the world’s second largest crop in terms of area harvested, and it is critical to the world’s food security. This project will assess the gap between maize yields obtained by current average farmer practices and yields that can be achieved through improved crop nutrition. It will implement the 4R strategy in characterizing the exploitable yield gap.”

Fertilizer is crucial to solving the world’s food shortages, but it must be managed carefully and used in combination with other available nutrient sources and in ways compatible with the modern world’s expectations of sustainability.



ASA and SSSA Fellow Paul Fixen (left) visits with a researcher at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico.

Chief Executive Officer's Message

Leadership and Change

by Ellen Bergfeld

During the first week of March, I attended the midwinter Council of Engineering and Scientific Society Executives (CESSE) CEO meeting. The keynote speaker, Dr. Gary Bradt—a clinical psychologist, leadership and change expert, and author of *The Ring in the Rubble*—presented some ideas I thought were worthy of consideration. He discussed tools that we can all use to allow ourselves to be more open to change and to continue to look for the opportunities that change provides, even when it can appear to be very negative. Perhaps this is particularly relevant in the current economy—what opportunities can each of us seek and pursue in today's turbulent times?

From Gary's toolbox, here are a couple concepts with a short description of each:

The 10-80-10 rule. A variation of the 80-20 rule, the 10-80-10 rule is a bell-shaped curve. When we are leading others through tough times or through significant change, focus on motivating the middle—80% of the group. The first 10% will be ready to jump onboard with you, and the last 10% are going to hate what is being proposed. We tend to focus more on those who aren't keen on the proposed changes (the last 10%), but we really ought to focus more on those in the middle who can be persuaded that there are opportunities.

Get comfortable with being uncomfortable. Success can be dangerous as we become very comfortable with where we are and don't seek new opportunities because they often provide discomfort. "Churn" in the gut can be a good thing. Are you willing to be uncomfortable?

Don't manage time, invest it in people. An opportunity may occur via talking to persons you don't normally interact with—they may be in a different department, in the lab, down the hall, or across campus, but get out of your comfort zone and strike up a conversation with someone you don't know or don't know well, especially persons who don't think like you, don't look like you, and don't act like you. Different perspectives can allow us to see things in a way that may make all the difference in solving challenges.

Let go! Let go of whatever is holding you down: anger, resentment, regret, baggage, the past...all of the excuses of "if only something were different, I could...." Let go of

"What if"—e.g., What if the economy doesn't recover, jobs are not available, etc.

Tactics for letting go:

- Manage "add ons"—let go of the extraneous: what is, is
- Refuse to carry other peoples' burdens—their concerns, gripes, and malcontent
- Write letters you never intend to send—to people you wish would behave differently
- Forgive (this is perhaps the most untapped stress management tool)
- Latch on to core values—they will sustain you

The two-minute drill. Give yourself two minutes to write a letter to your child or a child that you know and care about. In this scenario, you are writing about the most important things in life; specifically, write as if you will never see the child again and won't be around to give them advice in person. This exercise allows you to identify your deepest values. After having completed the exercise, take some time to think about what you have written and determine if you are living your values. These values link your past to your future. Use these values to guide everyday decisions and actions.

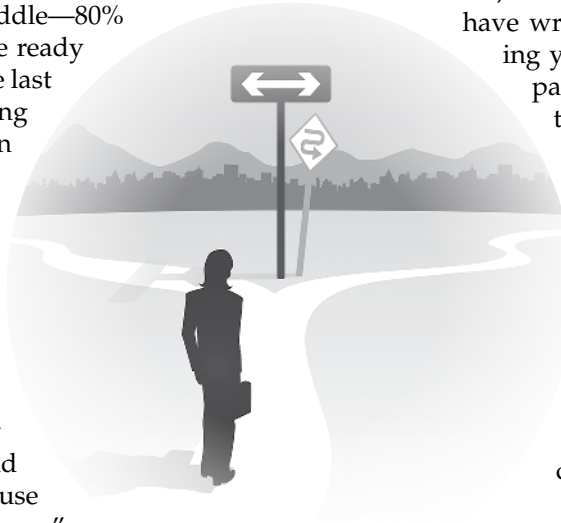
Balance. Make sure the goals that you seek are worth the price. Keep in mind your philosophical, physical, emotional, and spiritual/psychological balance. Rate on scale of 1-10 (1 being low and 10 being high) where you are with regard to balance in each of these states. Audit your calendar in this regard.

Be passionately patient! We need to continually reignite passion in our professional and personal lives. Here are a few tactics to consider:

- Don't assume what drove you earlier in your career will drive you today or will continue to drive you tomorrow
- Periodically reassess and redefine your goals and your passions
- Focus on causes larger than yourself that will provide meaning

And finally, don't lose your sense of humor! Life is short. Play hard.

E. Bergfeld, ASA-CSSA-SSSA Chief Executive Officer; ebergfeld@agronomy.org or 608-268-4979.





Facing Future Food Needs

by Terry L. Roberts

Early in 2008, the world was focused on the food crisis. A doubling of rice, wheat, and maize (corn) prices sparked food riots in poor nations and caused some countries to impose limits on crop exports. The food crisis resulted in the Food and Agriculture Organization of the United Nations (FAO) convening a “High-Level Conference on World Food Security” where governments and other organizations from 185 countries met to discuss the food shortage, its causes, and how to resolve it. By midyear, global attention had shifted from food security to credit as food prices declined and the financial crisis emerged. However, the food crisis has not subsided; rather, the sense of urgency associated with it has given way to the global recession.

More Demand for Food

Food security is one of the great challenges facing humanity. With the current world population of 6.7 billion expected to reach 9.2 billion by 2050, the Millennium Project’s 2008 *State of the Future* report suggested that food production would have to increase by 50% by 2013 and double in 30 years to meet the growing demand. Many believe that plant biotechnology holds the key to producing more food, and seed companies talk about corn, soybeans, and cotton that will yield twice as much grain and fiber per acre while using less water and less fertilizer by 2030.

However, plant breeding alone will not solve the world’s food shortage. Producing higher yields requires not only advanced genetics, but good agronomic management, which integrates soil, cropping systems, weed and insect control, and plant nutrition. Higher crop yields will never be achieved without good plant nutrition—utilizing both organic and inorganic nutrient sources. This is especially true in the developing world where yields are well below the yield potential of our current varieties.

Why Fertilizer?

Commercial fertilizer is necessary to maintain global crop productivity at current levels and will be even more crucial if yields are to be increased. In many countries,

T.L. Roberts (troberts@ipni.net), ASA Fellow and President of the International Plant Nutrition Institute (IPNI), Norcross, GA. IPNI (which superseded the Potash & Phosphate Institute in 2007) is a Cornerstone Sustaining Member of ASA. More about IPNI programs and staff can be found at www.ipni.net.

fertilization is inadequate and unbalanced, which limits yield potential and negatively impacts crop quality. Even if the biotechnology industry can deliver on its promise to increase crop yields through genetics and improve nutrient uptake efficiency, fertilizer is still critical to avoid depletion of soil nutrients and ensure soil quality.

It is difficult to determine exactly how much crop yield results from the use of commercial fertilizer because of inherent soil fertility, climatic conditions, crop rotations, management, and the crop itself. Crops differ in their nutrient requirements, and some (e.g., legumes) are not responsive to nitrogen fertilization. Nevertheless, meaningful estimates of the contribution of fertilizer to crop yield have been calculated using omission trials and long-term studies comparing yields of unfertilized controls to yields with fertilizer. These studies show that 40 to 60% of crop yield in temperate regions can be attributed to commercial fertilizer inputs—and it’s even higher in the tropics.

Managing crop nutrients is the focus of the International Plant Nutrition Institute (IPNI). Launched by the world’s leading fertilizer manufacturers on 1 Jan. 2007, IPNI is a scientific, agronomic organization dedicated to develop and promote scientific information about the responsible management of plant nutrition. Our scientists direct agronomic programs in North and South America, Russia, China, India, and Southeast Asia.

Central to our research and educational activities are fertilizer best management practices (BMPs)—the tools farmers use to efficiently and effectively manage nutri-

(continued on page 18)



Dr. Terry Roberts (right) is shown with Dr. Adrian Johnston, IPNI Vice President, Asia and Oceania Group, viewing a rice research plot in China.

A Generational Recommitment to Abolishing World hunger

by Norman Borlaug, Christopher Dowsnell,
Bill Raun, and Ed Runge

The term “Green Revolution” was first used in 1968 by William Gaud, USAID director, when referring to the dramatic improvement in wheat production in Pakistan and India that had occurred as a result of the improved dwarf wheat varieties, primarily Pitic 62 and Penjamo 62. Although this took place 40 years ago, the Green Revolution continues to carry a banner of commitment for developing nations. Yet, today, we continue to live in the shrouded thralls of world hunger with no universal pledge to eradicate it.

Human misery and suffering today are much greater than what they should be. Pogge (2005) reported that 44% of the world’s population lives below the \$2-per-day international poverty line and consumes only 1.3% of the global product. Alternatively, affluent countries consume 81% of the global product but account for only one-sixth of the world population (World Bank, 2003). Tolerating the existence of world poverty inflicts greater harm on us as a society than the meaningful sacrifice it would take to abolish it. Society can no longer stand by and innocently watch as much of the third world spirals into a cauldron of hunger, disease, angst, and anguish beyond any reality known in the developed world.

We need a multi-generational recommitment to delivering increased production in the troubled third world. This recommitment must come in the form of people, placing them along with our treasures and resources in the lands of others.

We need a program that puts the developed nations’ young, committed, and dedicated scientists on the ground in the third world. We need to embed that experience in

their psyche early on in their careers, entrenching the willingness to be better ambassadors throughout their life. We need young scientists that want more out of life than a new car and a new home; young scientists that want to make a difference and whose daily thoughts are haunted by the horrific images and pungent smells of human disease and starvation.

The developed world needs to share more of its massive wealth with the third world. We need increased taxes, designated specifically for developing nations. We need more bridges and fewer fences, more schools and fewer guns, more teachers and fewer terrorists.

This resonating message and others like it have been lost in a technological age of wireless networks, cell phones, GPS guidance, and satellite surveillance, yet despite this complexity, we remain incapable of hearing the basic cries of more than 30,000 people who die each day due to starvation and/or the secondary effects of malnutrition. More realistic and painfully embarrassing to the developed world is that terrorism has increased in direct proportion to the number of people in poverty and a growing sector of our world population that has lost hope.

We cannot begin to comprehensively combat terrorism until we first demonstrate our commitment and resolve to abolish world hunger. In order to make a lasting difference, we have to psychologically embrace a long-term and meaningful commitment—we have to provide hope to the disadvantaged.

Education: The Gift that Keeps on Giving

That commitment should start with a comprehensive K-12 education program for the entire third world that would cost trillions of dollars. The quintessential gift that keeps on giving is investing in education, the longest-lasting and most compassionate and fruitful gift society can give to itself. A commitment to education leads to schools, roads, infrastructure, production, and understanding. Education leads to tolerance among religious beliefs and a shared love for all our neighbors. If we all had it to do over, who wouldn’t take the billions of dollars spent in

N. Borlaug, Texas A&M University, College Station; C. Dowsnell, Sasakawa Africa Association, c/o CIMMYT, Mexico City; B. Raun, Oklahoma State University, Stillwater; and E. Runge, Texas A&M University, College Station.



Iraq and Afghanistan on a comprehensive K-12 education program for the entire developing world?

Comprehensive cooperation is required from the private sector to develop multitudes of improved cereal GMOs with increased yield potential and disease/insect tolerance. The private sector must restructure how it deals with intellectual property interests from seed sold in the developing world. Similarly, the International Agricultural Research Centers of the Consultative Group on International Agriculture (CGIAR) and developed-nation universities should fight for open access to improved GMOs in the third world and not further contribute to the problem by actively participating in the IP fray.

A generational recommitment to abolishing world hunger is needed. This starts with:

- talking about world hunger at the dinner table in our homes and leads to third-grade lemonade stands and bakery sales in our schools.
- writing monthly checks to NGOs and religious groups needing financial help abroad.
- extending our good will abroad with a new "World Hunger Corps" tied into the USDA.
- enriching the lives of our youth by requiring them to work in the third world and to experience what they never experienced before.
- committing our very best young scientists to careers in international development with the CGIAR and a multitude of NGOs.
- committing more funds through taxes for USAID and more money for a World Hunger Corps that works together with universities and the CGIAR system and a host of nonprofit groups/foundations.

A generational recommitment to abolishing world hunger starts and ends with the agonizing reality that we would be consumed with anger and hatred if it were our children dying of hunger and living without hope. It must start with all of us, and it is desperately needed now.

Finally, who could lead this generational recommitment? In the 1950s, 1960s, and 1970s, the Rockefeller, Ford, Kellogg, and Kresge foundations accepted and acted on the challenges for increased food production in the third world, and their efforts have delivered lasting changes. More recently, our world has benefited from the objective and sincere efforts from the Bill and Melinda Gates Foundation, which alone is incredibly well positioned to coordinate and lead the charge for an unparalleled K-12 worldwide education program, combined with a wealth of developing-world government and nongovernment organizations. We in turn must all work with them to answer the charge.

References

- Pogge, T. 2005. World poverty and human rights. *Ethics and International Affairs* 19:1.
- World Bank. 2003. World development report. Oxford University Press, New York.

ASA-CSSA-SSSA International Annual Meetings

2009

1-5 November, **Footprints in the Landscape: Sustainability through Plant and Soil Sciences**, Pittsburgh, PA; www.acsmeetings.org

2010

31 October-4 November, Long Beach, CA

2011

16-20 October, San Antonio, TX

2012

21-25 October, Cincinnati, OH

Other Meetings

USA/Territories

2009

29 March-3 April, **Soil Judging Contest** hosted by Missouri State University, Springfield, MO

3-4 April, **SASES Annual Regional Meetings** hosted by Kansas State University's Wheat State Agronomy Club, Manhattan, KS; www.agronomy.org/students/meeting

*26 April-3 May, **Soil Stewardship Week: Dig It! The Secrets of Soil**, sponsored by SSSA, National Association of Conservation Districts, and Smithsonian Institution; www.nacdn.org/stewardship/2009

*4-6 May, **SSSA Board of Directors Meeting**, Lexington, KY

17-20 May, **2009 International Animal Health and Nutrition Symposium**, Lexington, KY; www.alltech.com

*19-20 May, **ASA Board of Directors Meeting**, Madison, WI

19-21 May, **Plant-Soil Interactions in Future Climates**, University Park, PA; <http://plantbiosymposium.psu.edu>

27-29 May, **26th Annual Interdisciplinary Plant Group Symposium**, Columbia, MO; <http://ipg.missouri.edu/symposium.php>

31 May-3 June, **North American Agroforestry Conference**, Columbia, MO; www.centerforagroforestry.org/events/afta/index.asp

10-11 June 2009, **Carbon in Northern Forests: Integration of Research and Management**, Traverse City, MI; www.forest.mtu.edu/cinf

14-20 June, **XVI International Nitrogen Fixation Congress**, Big Sky, MT; john.peters@chemistry.montana.edu

22-24 June, **2009 Western Society of Crop Science Meeting**, Fort Collins, CO; www.crops.org/branches/western

22-24 June, **2009 Western Society of Soil Science Meeting**, Fort Collins, CO; www.soils.org/branches/western

22–26 June, **Society of Wetland Scientists 2009 Joint Meeting**, Madison, WI; www.sws.org/2009_meeting

28 June–2 July, **Ascochyta 2009**: Global Research Initiative, Pullman, WA; <http://capps.wsu.edu/conferences/ascochyta>

6–9 July, **International Symposium on Soil Organic Matter Dynamics: Land Use, Management, and Global Change**, Colorado Springs, CO; www.bgc-jena.mpg.de/bgc-processes/ceip/events/files/SOM_conference.pdf

12–15 July, **ASA–CSSA–SSSA Northeastern Branch Meeting**, Portland, ME; www.agronomy.org/branches/northeastern

14–16 July, **InfoAg 2009**, Springfield, IL; www.infoag.org

20–24 July, **11th International Symposium on Soil and Plant Analysis**, Santa Rosa, CA; www.isspa2009.com

1–5 August, **American Phytopathological Society Annual Meeting**, Portland, OR; <http://meeting.apsnet.org/>

23–27 August, **Farming Systems Design 2009**, Monterey, CA; www.iemss.org/farmsys09

*26–30 August, **XVI International Plant Nutrition Colloquium**, Sacramento, CA; <http://ipnc.ucdavis.edu>

25–30 October, **9th IPMB Congress**, St. Louis, MO; www.ipmb2009.org or ipmb2009@missouri.edu

2010

12–15 January, **Ag Connect Expo**, Orlando, FL; www.agconnect.com

27–28 January, **ASTM International Symposium on Salinization of Soil: Causes, Impacts, and Remediation**, San Antonio, TX; keith.hoddinott@us.army.mil

7–11 February, **Weed Science Society of America Annual Meeting** (concurrent meeting with the Society for Range Management), Denver, CO; www.wssa.net/index.htm

5–8 December, **2010 National Irrigation Symposium**, Phoenix, AZ

International

2009

29 March–3 April, **Preferential and Unstable Flow in Porous Media**, Ascona, Switzerland; www.pufinpom09.ch

*4–8 May, **XXIV Latin American Rhizobium Meeting**, Havana, Cuba; www.ugr.es/local/sefin/IBEMPA

5–8 May, **Ibero-American Conference on the Interaction of Microorganisms, Plants, and Atmosphere**, Havana, Cuba; www.ugr.es/local/sefin/IBEMPA

18–22 May, **17th International Conference on Environmental Bioindicators**, Moscow, Russia; www.bioindicators.org

25 May–26 June, **Five-Week CIMMYT Course on Conservation Agriculture: Laying the Groundwork for Sustainable and Productive Cropping Systems**, Mexico City, Mexico; www.cimmyt.org/english/wps/events/courses/pdf/announcement_CA_course_2009.pdf

*22–24 June, **9th Agricultural Science Congress**, Shalimar, Srinagar, India; www.naasindia.org/Announcements/Second%20Announcement.pdf

23–25 June, **Soil Organic Matters**, Harpenden, UK; www.rothamsted.bbsrc.ac.uk/Research/SoilOrganicMatters/Flyer.pdf

13–16 July, **10th International Conference on the Biogeochemistry of Trace Elements**, Chihuahua, Mexico; <http://icobte2009.cimav.edu.mx/>

*28–31 July, **Great Lakes Phosphorus Forum**, Windsor, ON, Canada; www.seral7.ext.vt.edu

*5–7 August, **Sciences for Sustainability: Soils, Agronomy and Atmosphere**, Guelph, ON, Canada; www.guelph09.ca

10–14 August, **Contemporary Crop Improvement: A Tropical View**, Cairns, QLD, Australia; www.plantbreeding09.com.au

10–15 August, **World Soybean Research Conference VIII**, Beijing, China; www.wsrc2009.cn

13–19 August, **8th International Carbon Dioxide Conference**, Jena, Germany; www.conventus.de/icdc8

23–28 August, **2nd World Congress of Agroforestry**, Nairobi, Kenya; <http://worldagroforestry.org/wca2009>

2–4 September, **7th ISRR Symposium on Root Research and Applications (RootRAP)**, Vienna, Austria; <http://rootrap.boku.ac.at>

7–9 September, **International Conference on Heterosis in Plants**, Stuttgart, Germany; www.uni-hohenheim.de/heterosis

*24–25 September, **2009 International Symposium on Mine Reclamation**, Sabuk, Korea; www.2009minereclamation.or.kr

7–11 October, **15th MESAEP International Symposium: Environmental Pollution and its Impact on Life in the Mediterranean Region**, Bari, Italy; www.mesaep.org

18–21 October, **First International Conference on Selenium in the Environment and Human Health**, Suzhou, China; www.sieueu/selenium

*5–7 November, **Potassium Role and Benefits in Improving Nutrient Management**, Bhubaneswar, India; www.ipipotash.org/events/IPI+OUAT+IPNI+International+Symposium+2009.php

14–19 November, **21st Association for the Advancement of Industrial Crops International Conference**, Chillan, Chile; www.aaic.org

16–20 November, **Soil Geography: New Horizons**, Huatulco, Santa Cruz, Oaxaca, Mexico; www.soilgeography09.fciencias.unam.mx or soilgeography09@gmail.com

17–19 December, **Food Security and Environmental Sustainability (FSSES) 2009**, Kharagpur, India; www.agri.iitkgp.ernet.in/fses2009/index.html

2010

7–10 February, **4th International Conference on Plants and Environmental Pollution**, Lucknow, India; <http://isebindia.com>

1–6 August, **19th World Congress of Soil Science**, Brisbane, Australia; www.19WCSS.org.au

30 August–3 September, **XI Congress of the European Society for Agronomy**, Montpellier, France; www.esagr.org

* New listing this month.

■ Society-sponsored conferences.

■ Branch, chapter, and board meetings.

Submit calendar listings online:
www.agronomy.org/calendar



Report from the Director of Science Policy

Good Times, Bad Times

by Karl Glasener

In the January issue of *CSA News* magazine, I reported that ASA–CSSA–SSSA developed a transition document, “Food, Feed, Fiber, and Fuel Productivity for the United States: Sustainability with Agronomic, Crop, and Soil Sciences,” which was sent to key leaders in the Obama presidential transition team (PTT). The purpose of the document is to educate the new administration about the importance of the agronomic, crop, and soil sciences and to lay out our priorities—food security, ecosystem services, renewable energy, climate change, environmental and human health, and science education and workforce development. I promised to include a link to the transition document and, while later than planned for, here it is: www.agronomy.org/sciencepolicy/files/asa-cssa-sssa-transition-document.pdf. I apologize for the delay.

In the transition document, we also recommend naming the Presidential Science Advisor early in the transition (Done!), establishing a Food Security and Renewable Energy Advisory within the White House Office of Science and Technology Policy (OSTP), establishing a Natural

K. Glasener, Director of Science Policy; 202- 408-5382 or kglasener@agronomy.org.

Resource Advisory within OSTP, seeking agricultural expertise when making new appointments to the President’s Council of Advisors on Science and Technology (PCAST), creating a Soil Quality Maintenance and Enhancement Subcommittee within the Committee on Environment and Natural Resources in the National Science and Technology Council, and other recommendations. Feedback from President Obama’s PTT has been very positive with one top official responding that she had sent the excellent document to White House OSTP Director-designee John Holdren! The transition document has also been shared with congressional offices and will be taken to other White House offices, federal agencies, and congressional committees and personal offices over the course of the next year.

In addition to communicating with the Obama Administration, ASA–CSSA–SSSA have also engaged with Congress in an ongoing effort to build support for our sciences. During the development and through the eventual passage of the recent economic stimulus, “American Recovery and Reinvestment Act of 2009,” we submitted, in concert with other organizations supporting science funding, a letter¹ to congressional appropriators and leaders stressing that innovation is the key to long-term economic security and renewed American technology leadership and urged lawmakers in both chambers to provide strong



Each month, the Research & Education Opportunities section highlights a federal research, education, or outreach program, and/or funding opportunity relevant to our sciences.

Hydrologic Sciences

The National Science Foundation Directorate for Geosciences Division of Earth Sciences announces a funding opportunity in the hydrologic sciences (solicitation NSF 09-538). Hydrologic sciences focus on the flow of water and transport processes within streams, soils, and aquifers. Particular attention is given to spatial and temporal heterogeneity of fluxes and storages of water, particles, and chemicals coupling across interfaces with the landscape, microbial communities, and coastal environments

Research & Education Opportunities

to upscaling and downscaling given these heterogeneities and interfaces and how these processes are altered by climate and land use changes. Studies may address aqueous geochemistry as well as physical, chemical, and biological processes within water bodies. These studies commonly involve expertise from many basic sciences and mathematics, and proposals often require joint review with related programs.

Cognizant Program Officer(s): L. Douglas James, program director (703-292-8549 or ldjames@nsf.gov) and Richard H. Cuenca, program director (703-292-4733 or rcuenca@nsf.gov). **Deadlines:** 1 June 2009 and annually thereafter and 5 Dec. 2009 and annually thereafter. Check with program officers for details. See www.nsf.gov/pubs/2009/nsf09538/nsf09538.htm.

support for science. We also sent letters² to congressional leaders and appropriators recommending \$100 million in additional funding for the Agriculture and Food Research Initiative (AFRI) in the economic stimulus bill.

While our efforts bore fruit for the National Science Foundation (NSF), National Institutes of Health (NIH), Department of Energy Office of Science (DOE OS), and other agencies, we were not successful with AFRI funding; when House and Senate negotiators came together with the Obama Administration, and the decision was made to reduce the \$800 billion bill in order to attract support from the Republican party, AFRI funding was eliminated. In short, nobody went to bat for us. On the other hand, increases of \$16.8 billion to DOE's Office of Energy Efficiency and Renewable Energy (DOE EERE), \$10 billion for NIH, \$3 billion for NSF, and \$2 billion for DOE OS were slated from the stimulus. The U.S. Geological Survey and NASA also benefitted from new funding increases in the economic stimulus.

Once again, we in the agriculture community find ourselves asking how we can reverse this bleak trend and have agriculture treated on an equal footing with the other sciences. Ideally, the agriculture community would come together to develop a single message and deliver it to policy makers in a unified, loud voice. Undoubtedly, achieving such a lofty goal would take a herculean effort, one that the Societies can and should certainly tackle. Meanwhile, because all change starts at home, we are embarking on a strategy to achieve significant increases for AFRI as well as continued strong funding for USDA-ARS and other programs supported by the Cooperative State Research, Education, and Extension Service (soon to be the National Institute of Food and Agriculture); NSF; DOE OS and EERE; NASA; and other science agencies.

Focusing on AFRI funding, ASA-CSSA-SSSA have recently come together with other agriculture interest groups and formed the Research Coalition to build support for the new competitive grants program. To date, the Research Coalition has pulled together a one-page AFRI support document³ that includes a request of \$250 million for AFRI in fiscal year (FY) 2010, to be followed by annual increases of \$50 million, which would result in a doubling, to \$500 million, of the funding level by FY 2014. The Research Coalition has also begun meeting with the Obama Administration and Congress to increase awareness for the importance of AFRI and advocate for the doubling.

A third step taken involves building grassroots support from our constituent scientists. Our Societies have begun building Core Constituent Science Teams (CCST) com-

(continued on page 35)

¹View the letter at www.agronomy.org/shared/temp/20090901/task-force.pdf.

²View letters at www.agronomy.org/shared/temp/20090901/senate-stimulus-letter.pdf and www.agronomy.org/shared/temp/20090901/house-stimulus-letter.pdf.

³View the one-pager at www.agronomy.org/sciencepolicy/files/afri-one-pager.pdf.

Science Policy Intern Report

Educational Outreach

by Laura Murphy



The most satisfying part of the six months I have spent as the ASA-CSSA-SSSA science policy intern in Washington, DC has been to facilitate constituent (your) involvement in the political process. However, while the internship is structured to provide many opportunities for outreach to Congress on behalf of ASA-CSSA-SSSA members, there has historically been little outreach directly from the intern to members about Congress or science policy. Additionally, the science policy office has historically had little interaction with the graduate student portion of the Societies' membership. Recognizing the importance of advocacy efforts to the professional development of young scientists (many of whom will rely on public funding in their careers) and the future of agronomic, crop, and soil science research in general, I decided to undertake an educational outreach project to capitalize on these opportunities for improvement.

On 21 February, I held an educational presentation on agronomic, crop, and soil science policy and advocacy with Penn State graduate student members of ASA-CSSA-SSSA. The presentation was followed by a lunch meeting with a staff member from the office of Rep. Glenn Thompson (R-PA). The primary goal of the activity was to teach young, aspiring scientists about the importance of and need to educate and engage with policy makers in support of agronomy and the crop and soil sciences. Ultimately, I hope that member outreach activities will become an important focus for future interns and that, little by little, ASA-CSSA-SSSA members across the whole range of career stages will become more comfortable with their role as advocates for agronomy and the crop and soil sciences.

The experiential education provided by this internship has been valuable, and I thank the Societies for the opportunity. While this in depth of an experience in science policy is not for everyone, we all have an opportunity and a responsibility as a constituents to engage our congressional delegation (our representative and two senators). Active constituents in other sciences have been rewarded with unprecedented federal funding. The impacts of the agriculture and natural resource sciences are equally far reaching as other scientific disciplines, and it is our task to say so. Although the Societies' membership is diverse and represents a spectrum of political beliefs, I believe there is one issue on which we can easily collaborate: support for agronomic, crop, and soil science. To this collective end, we must individually be active constituents.

L. Murphy, Science Policy Intern, Washington, DC.

A Role for Agronomic, Crop, and Soil Sciences in Energy Policy?

by Caron Gala Bijl



The Senate Democratic majority plans to introduce a new comprehensive energy bill within the next month that will very likely include biomass production in the renewable energy provisions. Sen. Jeff Bingaman (D-NM), chairman of the Energy and Natural Resources Committee, is leading the bipartisan effort and will likely include a requirement that utilities have a certain percent of energy production coming from renewable energy sources, including biofuels.

Given the growing importance of renewable energy, the agronomic, crop, and soil sciences clearly have an important role to play in the development of U.S. energy policy. This role is essentially a continuation of that identified in the last energy law, Public Law 110-140, the Energy Independence and Security Act of 2007.¹ In PL 110-140, there is an entire title addressing biofuel production (Title II—energy security through increased production of biofuels), which describes the renewable fuel standard (RFS). This title outlines two reports relevant to the agronomic, crop, and soil sciences. Title II, Section 203 requires that a “study of impact of the RFS” be performed by the National Academy of Sciences while Section 204 requires that the “environmental and resource conservation impacts” be assessed by the USEPA in coordination with USDA and the Department of Energy (DOE). These reports will likely be available to the public in June of this year and December of 2010, respectively. A similar (complementary) charge was given to the Secretary of the Treasury in the 2008 farm bill, H.R. 6124, Title XV, Subtitle C, Part II, Subpart A, and Section 15322.

Funding Research

The two reports will no doubt shed light on what future research is needed to develop sustainable biofuel feedstock production practices. However, in the meantime, research is needed on how plants with traits favorable for biofuel production respond to field conditions. An ASA, CSSA, and SSSA Farm Bill Workgroup that formed to develop recommendations for the energy title of the farm bill wrote, “It is essential to bridge the gap between fundamental biological discovery and the reliable expression of new traits in the field, with successful incorporation of varieties having these advanced traits into crop rotations and cropping systems. Crop breeding and cropping systems research are the only means of assuring high performance of feedstock crops in the field.”²

Another new program created in the 2008 farm bill, Section 7202, the “Agricultural Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative,” included \$50 million in funding. This is a competitive research and extension grants program that focuses on closing this gap by improving agricultural biomass production using observations in the field. However, because this is only a discretionary authorization (which means appropriators must provide funding annually) and budgets are very tight this year, it can very easily be ignored unless ASA, CSSA, and SSSA constituent scientists speak up and contact their legislators urging them to support the program.

As Karl Glasener reports this month, there was an effort to fund research similar to that outlined in Section 7202 through USDA’s Agriculture and Food Research Initiative (AFRI) during discussions surrounding the economic stimulus bill (the American Recovery and Reinvestment Act of 2009). However, the proposed AFRI funding was zeroed out in the final version of the bill though \$800 million was allocated to DOE to be used for biomass energy technology development (where biomass technologies include growing plants to be used to produce fuel, i.e., biofuels). While this is an exciting allocation for DOE, USDA’s contributions were not highlighted.

In short, we need to do some educating. When the Food, Conservation, and Energy Act of 2008 and the Energy Independence and Security Act of 2007 both define crop residue as a waste product, you know a concerted educational effort is required. During the development of the next energy bill, our key message will be that *cropping systems development is the best short-term investment for the bioeconomy, climate, and the environment available*—but to see success, we will need your help. Please email us (sciencepolicy@crops.org) if you are interested in communicating with your congressional delegation in support of cropping systems development in this year’s energy legislation.

C. Gala Bijl, Science Policy Programs Coordinator; cgala@agronomy.org.

Geneticist Ken Vogel conducts breeding and genetics research on switchgrass. Photo by Brett Hampton (USDA-ARS).



VSA N04 April 2009

¹View the bill at <http://thomas.loc.gov/bss/d110/d110laws.html>. Click on “110-101-110-200,” scroll down to “140,” and click on “PDF”.

²See “Energy Recommendations for the 2007 Farm Bill: Planting for the Future—Crop Breeding and Cropping Systems” at www.crops.org/shared/temp/20080201/crops.pdf.

Membership

Welcome New Members

The Societies welcome the following new members who joined the American Society of Agronomy, Crop Science Society of America, and/or Soil Science Society of America in February 2009. Welcome new members!

Australia

Quddus, Muhammad Salman, Darwin, NT

China

Yang, Xingyong, Beibei, Chongqing

Denmark

Bondo, Louise Grabowski, Farum

Germany

Isselstein, Johannes, Goettingen
Shchegolikhina, Anastasia, Bochum

India

Bisht, Vikram, Ludhiana, Punjab
Kaushik, Nutan, New Delhi
Pawa, Pradeep, Faridabad, Maryana

South Korea

Kim, Min Chul, Jinju, GN

United Kingdom

Cockram, James, Cambridge

United States

Price, Jeffrey A, Moulton, AL
Cooley, Chris L., Fayetteville, AR
Motschenbacher, Jill Marie, Fayetteville, AR
Sheffer, Ruby J., Chandler, AZ
Duncan, Danielle, Flagstaff, AZ
Fichtner, Scott, Clovis, CA
Craig, Dennis L., Corcoran, CA
Fridlund, Scott M., Fresno, CA
He, Raymond, S. San Francisco, CA
Solliday, Amanda, Washington, DC
Cepeda, Jose, Miami, FL
Winkler, Mark D., Alhambra, IL
McMillen, Brian Lee, Gerlaw, IL
Barber, Wesley Thomas, Urbana, IL
Edwards, Brad, Urbana, IL
Kandianis, Catherine, Urbana, IL
Osting, Nathan Frederic, Milroy, IN

Clepper, Marta, Richmond, KY
Lowrey, Mariah, Baton Rouge, LA
Mite, Jose Rodolfo, Baton Rouge, LA
Simoneaux, Stephen, Baton Rouge, LA
Aanderud, Zachary T., Hickory Corners, MI
Paumen, Nicholas, Maple Lake, MN
Peterson, Tyler, Northfield, MN
Keck, Jason B., Owatonna, MN
Feldmeier, Matt W., Rushford, MN
Anderson, Kelsey, St. Peter, MN
Galbreath, Christine, Victoria, MN
Watson, Wyatt Price, Bolivar, MO
Turner, Zachary M., Branson, MO
James, Kymberly R., Edgar Spring, MO
Hankins, Jill K., Springfield, MO
O'Dea, Justin Kevin, Bozeman, MT
Reed, Janet, Cary, NC
Cheng, Lei, Raleigh, NC
Mattson, Taylor, Carrington, ND
Schoch, Amanda, Fargo, ND
Tuftte, Michael J., Fargo, ND
Ferebee, Kyle, Halliday, ND
Stoppler, Tiffany D., Minot, ND
Piitz, Chelsea, Brainard, NE
Thiry, Bryan J., Butte, NE
Quiring, Collin M., Henderson, NE
Dworak, Scott Matthew, Lincoln, NE
Novacek, Mitch J., Lincoln, NE
Zygielbaum, Arthur I., Lincoln, NE
Miller, James Wilson, Minden, NE
Rogers, Nicholas A., Pawnee City, NE
Langemeier, Craig B., Scribner, NE
Jan Prosper, Jane, Roselle, NJ
French, Jason M., Las Cruces, NM
Ines, Amor V.M., Palisades, NY
Walker, Ross C., Dunkirk, OH
Confesor, Remegio, Tiffin, OH
Aldabaa, Abdalsamad Abdalstar Ali, Stillwater, OK
Stephenson, Garry, Corvallis, OR
Johannessen, Carl, Eugene, OR
Cervelli, Elizabeth Lucia, Junction City, OR
Berg, Colleen Martin, Slippery Rock, PA
Anjum, Muhammad Ashfaq, Clemson, SC
Dickson, Kyley, Jamestown, TN
Holland, Stephen E., Knoxville, TN
Worley, Brent S., Knoxville, TN

Watson, Heather Diane, Brenham, TX
Kolb, Laura J., College Station, TX
Rinderknecht, Ross, College Station, TX
Castillo, Mayo Natalia, Lubbock, TX
Shepherd, Pamela Jo, Blackstone, VA
Aulakh, Sukhwinder S., Danville, VA
Proctor, Christopher A., Pullman, WA
Gronski, Jeffrey J., Babcock, WI
Cavadini, Jason S., Bangor, WI
Hoppman, Kyle, Cuba City, WI
Vogt, Albert, Hazel Green, WI
Micek, Kyle L., Independence, WI
Vitko, Lauren Frances, Madison, WI
Nyre, Samantha, Mondovi, WI
Much, Kyle B., New London, WI
Babcock, Beth, Platteville, WI
Bishop, Brandon, Platteville, WI
Cannalle, John, Platteville, WI
Clark, Dana, Platteville, WI
Correia, Whitney, Platteville, WI
Delp, Sara, Platteville, WI
Drier, Travis, Platteville, WI
Gevelinger, Jacob, Platteville, WI
Hill, Emily, Platteville, WI
Hopke, Mike, Platteville, WI
Liddane, Anna, Platteville, WI
Schober, Dan, Platteville, WI
Trumpy, Haley, Platteville, WI
Watkins, Casey, Platteville, WI
Wichman, Matt, Platteville, WI
Bender, Ross, River Falls, WI
Beyrer, Tryston A., River Falls, WI
Eckert, Ryan M., River Falls, WI
Exum, Kelsey, River Falls, WI
Hartwig, Bradley R., River Falls, WI
Gehling, Timothy, River Falls, WI
Lenzmeier, Stephen, River Falls, WI
Liesch, Amanda Mae, River Falls, WI
Oehlke, Betsy, River Falls, WI
Thompson, Kristi, River Falls, WI
Travis, Justin M., River Falls, WI
Van Dyk, Peter W., River Falls, WI
Sherman, Jess, Stevens Point, WI
Sollman, Ashley M., Turtle Lake, WI
Huber, Jeff, Wisconsin Dells, WI
Wolosek, Lance, Wisconsin Rapids, WI
Willard, Anthony, Morgantown, WV
Mulinix, Jacob Thomas, Gillette, WY

Australian Center for International Agricultural Research

CRAIG MEISNER, an adjunct professor at Cornell University Department of Crop and Soils, will join the Australian Center for International Agricultural Research (ACIAR) to begin work as agricultural research and extension manager in Cambodia. ACIAR will manage the research and extension component of a five-year Cambodia Agricultural Value Chain Program. The goal of the program is to accelerate growth in the value of agricultural production and smallholder incomes in selected provinces (Kampong Thom, Takeo, and Kampot) through improved productivity of rice-based farming systems. Dr. Meisner combines research skills and management with experience in extension systems, farmer field schools, and farmer groups and has worked with a wide range of crops, including rice-based farming systems, and with nutrients, water, and agricultural engineering inputs.



Craig Meisner

Bayer CropScience

Bayer CropScience and Nature Source Genetics have entered into an exclusive five-year collaboration involving the pre-breeding and enhancement of cotton germplasm. The goal of the collaboration is to identify and incorporate previously inaccessible genes of interest by making use of innovative technologies to create substantially improved cotton varieties.

The partnership will focus on combining the expertise of Bayer CropScience's cotton breeders and molecular biologists with Nature Source Genetics' technical know-how and their new proprietary bioanalytical platform to identify and utilize the full range of promising genetic material. Currently, cotton breeders are limited to using a small portion of genetic diversity in the cotton genus to develop improved varieties. This cooperation, however, will provide researchers with the opportunity to identify high-value genes in previously unused genetic material and, more importantly, the opportunity to develop methods for incorporating these new genes into commercial germplasm. Bayer CropScience will initially concentrate on the areas of yield improvement, stress resistance (both biotic and abiotic), and fiber quality, with more traits being added as the program expands.

Canadian Joint Annual Meeting

The Canadian Society of Soil Science, Canadian Society of Agronomy, and Canadian Society of Agricultural

International Year of Planet Earth Radio

Celebrate the International Year of Planet Earth (IYPE) by listening to these *Earth & Sky* radio programs and podcasts:



- **Water:** www.earthsky.org/radioshows/53043/time-to-rethink-us-water-says-expert
- **Dinosaurs:** www.earthsky.org/radioshows/53049/did-volcanoes-kill-the-dinosaurs
- **Climate Change:** www.earthsky.org/radioshows/53068/southwests-climate-history-suggests-future-drought-possible
- **Energy/Water:** www.earthsky.org/radioshows/53085/energy-and-water-tradeoffs-in-oil-extraction

Watch for a soon-to-be released program on **Soil and Climate Change**, as part of this IYPE radio series.

and Forest Meteorology has announced a call for papers for its Joint Annual Meeting, "Sciences for Sustainability: Soils, Agronomy, and Atmosphere," 5-7 August, at the University of Guelph. These three societies welcome scientific contributions to the theme in the form of oral and poster presentations. For more information on the meeting and abstract submissions, visit: www.guelph09.ca.

Information Agriculture Conference

Individuals interested in precision agriculture should mark their calendars for the next edition of the popular Information Agriculture Conference, set for 14-16 July at the Crowne Plaza in Springfield, IL. InfoAg 2009 will continue the tradition of bringing together the latest in precision farming, information management, and communication technologies, providing a forum for discussion and demonstration of what is working, what is new, and what is needed. It is an excellent forum for networking with others who are involved in implementing these systems in the field. The event is organized by the International Plant Nutrition Institute and the Foundation for Agronomic Research, with exhibits coordinated by CropLife.

InfoAg 2009 will present a wide range of educational and networking opportunities for manufacturers, practitioners, input suppliers, producers, extension and USDA-NRCS personnel, and anyone interested in site-specific techniques and technology. For more information, visit: www.infoag.org.

International Plant Nutrition Institute

The International Plant Nutrition Institute (IPNI) will offer its annual Scholar Award to honor and encourage deserving graduate students and the IPNI Science Award to recognize and promote distinguished contributions by scientists. The Scholar Award requires students who are candidates for either a M.S. or Ph.D. degree in agronomy, soil science, or related fields to submit an application and supporting information by 30 June. Individual graduate students in any country where an IPNI program exists are eligible. Only a limited number of recipients are selected for the award, worth \$2,000 each. The Science Award goes to one individual each year, based on outstanding achievements in research, extension, or education that focus on efficient and effective management of plant nutrients and their positive interaction in fully integrated crop production, enhancing yield potential. It requires that a nomination form (no self-nomination) and supporting letters be submitted by mail before 30 September. It includes a monetary prize of \$5,000. More information about past winners of these awards, plus details on qualifications and requirements for both awards, can be found at the IPNI website: www.ipni.net/awards.

Iowa State University

Dermot Hayes, Iowa State University agricultural economist, has been named to the Biomass Research and Development Technical Advisory Committee, jointly administered by USDA and the Department of Energy. The committee was established by the Biomass Research and Development Act of 2000 and assists the two departments in meeting the act's "important national goals of a healthier rural economy and improved national security." Hayes will fill the appointment for three years. As a committee member, he will advise the Biomass Research and Development Board, which coordinates research and development activities relating to biofuels. Hayes holds the Pioneer Hi-Bred International Chair in Agribusiness and is a professor in the Department of Economics and Department of Finance at Iowa State.

MARK WESTGATE, Iowa State University professor of agronomy, has been named director of Iowa State's Center for Sustainable Rural Livelihoods. Dr. Westgate joined Iowa State's agronomy faculty in 1998. He began working with Center for Sustainable Rural Livelihoods in Uganda last year as a member of a USAID-funded project on bean production and marketing.

Texas A&M University

Russell Jessup, assistant professor of perennial grass breeding, has joined the faculty of the Department of Soil and Crop Sciences at Texas A&M University, College Station. Dr. Jessup received his degrees at Texas A&M, including a B.S. in plant and environmental science and

an M.S. and Ph.D. in plant breeding. He will be teaching classes in plant sciences and working with Texas AgriLife personnel to serve biomass, turfgrass, forage, ornamental, and renewable product producers in Texas and throughout the southern United States.

DONALD McGAHAN, assistant professor of soil science, was appointed jointly to the faculty of the Department of Soil and Crop Sciences at Texas A&M University and the Department of Agribusiness, Agronomy, Horticulture, and Range Management at Tarleton State University. He received his Ph.D. in soils and biochemistry from the University of California-Davis. Dr. McGahan is teaching soil science courses at Tarleton State University, directing graduate students in collaboration with his colleagues at the Texas AgriLife Center in Stephenville and also working on various soil science issues throughout the region.



Russell Jessup



Donald McGahan

USDA-ARS

Botanist DAVID M. SPOONER has been named an "Area Senior Research Scientist of 2008" by USDA-ARS. Dr. Spooner works in the ARS Vegetable Crops Research Unit in Madison, WI. He and other award-winning senior and early career scientists were recognized by ARS Administrator EDWARD B. KNIPLING at an awards ceremony at USDA headquarters. Spooner demonstrated, for the first time, that cultivated potatoes originated from a single region in southern Peru. He also found that early introductions of the potato to Europe came from lowland Chile, challenging a long-held hypothesis that these introductions came solely from the high Andes. His research has completely revised science's understanding of the taxonomy and origin of the cultivated potato, rewritten the history of its spread outside of South America and has redefined the diversity and evolution of this important crop. Spooner has traveled all over the world in efforts to help build an extensive germplasm collection for the U.S. potato genebank. His numerous collections are now being used by researchers worldwide, including many species never before available as germplasm. Spooner has served as a program organizer and executive committee member of the Botanical Society of America and as a professor with the Department of Horticulture at University of Wisconsin. His research on the origins of potatoes has been published in the journal *Crop Science*, and the Societies have featured it as a press release.

In the Business & People section, ASA-CSSA-SSA members are listed in all caps.

Introducing New Early Career Committee Members

Editor's Note: This month's column is written by the newest additions to the ASA-CSSA-SSSA Early Career Members Committee. Dennis Coker is a program specialist for Texas AgriLife Extension, Texas A&M University; Rob Michitsch is completing his doctoral studies at Dalhousie University, Nova Scotia, Canada; and Justin Moss is an assistant professor at Oklahoma State University.

Dennis Coker: Assisting the Producer in Agriculture

Growing up on a small grain, cow-calf operation in central Texas provided a lot of opportunity to learn about some of the resources needed for the production of forage, monitor the health of livestock, and develop an appreciation about the timeliness of management inputs. Time spent on a row-crop farm in the Red River Valley of North Dakota during my latter years of high school introduced me to challenges and opportunities facing producers in other disciplines of agriculture. It was from this background that I launched into formal classroom training in the university environment as an agronomy major and generally continued in that vein through B.S., M.S., and Ph.D. degrees. I consider myself rather passionate about farming and farm life.

Whether in industry, government, or academia, our work likely relates to assisting the agricultural producer with one or more facets of their operation. Currently, as an extension program specialist with the Texas AgriLife Extension Service, I conduct demonstration studies in soil fertility primarily on cooperator farms across the state. One thing that continues to interest me, whether in the formal classroom setting or during time spent in the field, is how all the various disciplines of study such as plant breeding, nutrition, physiology, entomology, weed science, and many others along with the environment collectively interact and affect the outcome of a single cropping season. Questions and issues that arise in each of the respective disciplines of study can usually be addressed through new and continuing research efforts. However, the input of scientists and advisers contributing knowledge across disciplines and working together is needed to maintain the viability of production agriculture. As the expression goes, the sum of the parts equals the whole.

Whatever a person's special interest within agronomy, crop, or soil science might be, I appreciate the avenues by which early career members in the Societies can contribute efforts professionally. While a Ph.D. candidate at the Uni-



Dennis Coker

versity of Arkansas, I attended my first Annual Meetings of the Societies at the encouragement of my mentor and adviser Dr. Derrick Oosterhuis. This was a special opportunity to become more actively involved in the Societies even though I had been a member for more than 10 years. In Annual Meetings since, the opportunity to meet and network with others in similar disciplines has been beneficial and enjoyable. I look forward to interacting with and assisting the Early Career Members Committee.

Rob Michitsch on Canuck Soils: No, They're Not All Frozen

I still don't know how I ended up as a soil and waste junkie—maybe an outlook of sustainable existence in the environment, or a "Suzuki" influence, or perhaps being raised near an overflowing landfill in a bustling tourist city. Regardless, an addiction to trail running and biking has nurtured my sensitivity to my surroundings—our surroundings—and has brought me face to face with soils and wastes on a daily basis.



Rob Michitsch

Nature works in cycles, and all products and by-products are constantly recycled in the closed system we call earth. Therefore, what we define as "wastes" should really be called "resources" for another part of a cycle. Take the agri-food sector as an example. We produce food and animals and recycle their end-products back to soils and plants; however, this relationship is stressed and a bit imbalanced in current times. Too often we overlook certain aspects that lead us into trouble, like poor waste disposal practices that expose us to pathogens.

The role of soils in these cycles is a key interest of mine. Soil is a critical component of nature that interacts with other important aspects, such as water, air, plants, and animals. In my experiences I've been fortunate to work within all these realms, but soils have always drawn me in further. I'm constantly reminded that soils play a role in everything, and I'm excited to be working in this area.

That's why I joined the Societies in 2002. They offer a unique exposure to all factors of environmental cycles, and the numerous members from all sorts of fields and countries offer a collective wisdom that knows no bounds. I started to get involved in the Societies as a graduate member because this wisdom goes beyond typical science research, connecting with social issues, politics, the arts, and more. The Societies are also opportunely positioned to be influential in environmental decision-making and shaping our future, which I find energizing. In this role, early career members will help to shape the Societies for many, many years, and I'm happy to have the chance to contribute.

And no, Canadian crops and soils are not always frozen or waterlogged, and most of us don't live on permafrost...though as winter prolongs its grip this year, I've been starting to wonder!

Justin Moss: The Long and Winding Road

I began my academic career in junior college majoring in forestry. During this time, I obtained a summer job working on a golf course in my hometown. I had never played golf and did not realize that one could make a career managing turfgrass. The golf course pro let me play for free on Mondays, so I bought my first set of golf clubs and became slightly addicted to the game. I loved working outside and being on the golf course, so I changed my major to horticulture and transferred to Oklahoma State University (OSU). I worked for a golf course in Little Rock, AR for my required undergraduate summer internship and was exposed to the world of academic research. Horticulture faculty from the University of Arkansas were testing several grass cultivars for turf performance, and I was charged with taking care of the plots for the summer. I really enjoyed the work and research experience, so I applied to the horticulture M.S. program at OSU.



Justin Moss

During my M.S. program, I was required to be a teaching assistant (TA) in the OSU Department of Horticulture and Landscape Architecture. At the time, the most terrifying experience I could dream of was to get up and talk in front of a class, much less teach. I even had to take Introduction to Speech twice during my undergraduate career. However, I somehow managed to survive that first semester of teaching. I even came to enjoy and look forward to teaching and picked up another TA assignment the following semester. I decided that my eternal calling was to teach, and I figured I would pick up a research project or two along the way. Oh how I often miss those youthful and idealistic times. I stayed at OSU, obtained my Ph.D. in crop science, and ventured out into the real world. I took a non-tenure-track job managing an off-campus research station for the University of Wyoming for a few years and managed to find my way back to Oklahoma. I am now a new assistant professor in the OSU Department of Horticulture and Landscape Architecture.

I quickly learned that teaching and preparing our students is important, but research, procurement of grant funds, and publication of peer-reviewed scientific manuscripts is extremely critical to the success of an early career faculty member. Actually, I do not even have a formal teaching appointment in my current assignment of 70% research and 30% extension. Now don't get me wrong, I love research and extension, but it is funny how things often work out. My advice to other early career members and graduate students is to stay true to your dreams and

Early Career Members Committee
Serving members beginning their careers—new professionals and graduate students in agronomy, crop, soil, and environmental sciences.

your calling, but learn to be flexible and willing to adapt to the situation.

The most helpful duties I have experienced were attending regional and national grant-writing workshops, volunteering for research proposal review panels, and volunteering to review papers for several journals in my field. Having the experiences of serving on grant proposal review panels and attending grant-writing workshops has taught me what to expect, common mistakes to avoid, and the importance of communicating with program leaders and peers when developing research proposals. Reviewing papers in my field has helped me to stay up to date with the science and become a better writer and communicator.

Lastly, time management and the ability to develop and keep a schedule is extremely critical to the success of an early career member. Using your calendar and blocking out time to read, write, or prepare proposals and manuscripts will certainly help one to stay on track and can even reduce stress and that "I've got 10,000 things to do and no time to do them" feeling.

I am honored to serve on the Early Career Members Committee, and I look forward to meeting fellow early career members in Pittsburgh this fall.

The Early Career Members Committee is planning professional development programs for the Annual Meetings, 1–5 November, in Pittsburgh, PA. For a tentative program, click on the "Z03 Early Career Member" link on the Preliminary View of Topical Sessions/Symposia page at www.acsmeetings.org.

Farming Systems Design Symposium

Aug. 23-26, 2009 • Monterey, CA



Save the date for the second **Farming Systems Design Symposium**—a meeting for scientists, agribusiness, public sector, and consultants to exchange ideas, findings, and information on farming systems.

www.iesmss.org/farmsys09

CEUs pending



The deadline for Career Center listings is the first of the month preceding publication (e.g., 1 March for the April issue). To submit a listing online, go to: www.careerplacement.org and click on "post jobs, graduate assistantships & internships" or email copy to jobs@agronomy.org. The listing will be posted online within three business days. The charge for listings is based on the number of characters and whether or not you want it to appear online, in *CSA News*, or both.

If you want to post a B.S., M.S., Ph.D., or postdoctoral level position online only, the charge is \$450 for 3 months for any character count. For internships or assistantships posted online only, the charge is \$200 for 3 months for up to 1,200 characters (including spaces). If you want to post a B.S., M.S., Ph.D., or postdoctoral level position BOTH in *CSA News* and online, the charge is \$300 per month for 0–1,000 characters, \$450 per month for 1,001–2,000 characters, and \$600 per month for 2,001–3,000 characters. To post internships or assistantships in BOTH *CSA News* and online, the cost is \$200 per month for up to 1,200 characters.

For questions regarding Career Center listings, email jobs@agronomy.org or call 608-268-4972. Our online Career Placement Center provides a searchable job and resume database—see www.careerplacement.org.



records, develop and manage budget, and market surplus crops. Qualifications: Required: MS or PhD in agronomy, horticulture, or closely related discipline; research experience in applied plant science; demonstrated oral and written communication skills. Desirable: Coursework, training, or experience in: statistics, plot design, computer applications, integrated pest management, and managing budgets and personnel; experience with farm equipment; public pesticide applicator's license; experience in seeking external funding. Availability: Immediately. Salary: Competitive salary and benefits package will be offered. Closing Date: May 22, 2009, or until a suitable candidate is identified. Application: Submit resume, full contact information for 3 references, and one-page statement of the opportunities and challenges of managing this PSU research and extension facility to: Dr. Bruce A. McPheron, Director, Pennsylvania Agricultural Experiment Station, The Pennsylvania State University, 217 Agricultural Administration Building, University Park, PA 16802-2600. Contact Dr. McPheron at the above address or by email at bam10@psu.edu for more information. To learn more about the College of Agricultural Sciences and view an extended version of this position description, visit our website at: <http://www.cas.psu.edu/>. Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce.

Bachelors/Equivalent Required

Florida—Organic Recovery Salesperson. Organic Recovery (OR) seeks experienced salespeople with agronomy backgrounds who understand the importance of soil health. Positions open for either in-house salespeople or preferably manufacturer's representatives with territories anywhere in US, Canada or Mexico. OR, located in Pompano Beach, Florida, converts food residuals into a micro-nutrient rich, organically-derived, liquid, biological soil amendment. OR sells its finished product, H2H harvest-to-harvest™ to farms, golf courses and other agricultural and recreational uses. Email interest and resume to: jobs@organic-recovery.com.

Masters/Equivalent Required

Pennsylvania—Plant Scientist/Scientist-in-Charge. Penn State's College of Agricultural Sciences seeks a plant scientist to conduct research (65%) and cooperative extension (35%) programs and to serve as scientist-in-charge of the Southeast Agricultural Research and Extension Center at Landisville, Lancaster County, Pennsylvania. This station supports research and extension efforts focused on agronomic and horticultural interests of the region. This is a non-tenure track position and reports to the Director, Pennsylvania Agricultural Experiment Station. Affiliation with appropriate PSU academic department is expected. Research responsibilities: Collaborate with and support researchers from the Departments of Crop & Soil Sciences, Entomology, Horticulture, and Plant Pathology. Cooperate with research and demonstration activities initiated by Capital and Southeastern Region extension personnel. Duties include assigning land areas, supervising land preparation, fertilization, planting, pest management, irrigation, and data collection. Independent research is encouraged. Cooperative Extension responsibilities: initiate extension programs, collaborate with/support field-based educators and extension specialists on field days, tours, and clinics at the SE Center, participate in other educational activities, prepare extension materials, and participate in other statewide extension activities. Scientist-in-Charge responsibilities: supervise technical/hourly employees, supervise/maintain equipment, facility and grounds, maintain

Washington—Application Scientist: Plant Physiology Research (Part-time/Full-Time). CID, Inc. is a manufacturer of scientific instruments for plant physiology research. With a unique product line tailored to the needs of field researchers, CID, Inc. products are sold to universities and research institutions worldwide. We are a 22 person company founded in 1991 and located in Camas, WA, just outside of Portland, Oregon. Our business is in a growth phase and there is the excitement of being a key contributor during this expansion. This will be a headquarters based position. Our flexibility makes this opportunity available either part or full time. This may be an ideal opportunity for a graduate student or part-time professor. As resident scientist, the Application Scientist will consult with existing and potential customers to best apply CID, Inc. products to their research projects. The Application Scientist will further assist with product selection and price quotations for interested prospects. Distributor development is a primary responsibility of the Application Scientist and includes distributor correspondence, visitation, and training in the use of CID's products. Distributors provide consultative selling of CID products in most countries outside of the United States. Scientific conferences and exhibitions are an important venue for meeting our customers. The Application Scientist will attend and promote CID products at these events. See us at www.cid-inc.com. Requirements: Currently holding or pursuing an M.S. or Ph.D. degree in agricultural science, such as agronomy, plant pathology, plant physiology; Creative, problem solver with a record of analyzing research projects and results and trouble-shooting and/or adapting research equipment; Experience giving presentations and developing training materials; Record of building strategic relations and influencing research project decision-makers; Results-oriented with project management experience; Computer proficiency (MS Word, Excel, PowerPoint, database management, project management, statistical, etc.); Available to travel (10 to 25 %) primarily China, India, S. America & Europe. Our Organization: CID, Inc. provides a comfortable, casual yet professional work environment in which employees collaborate in product development and serving worldwide customers. We are located in a beautiful natural environment 15 minutes from the Portland

Airport with forests, walking trails and a golf course in our backyard. CID provides excellent benefits including fully paid health and dental insurance, 401K, holidays, vacations, sick leave, cafeteria plan for life, disability and supplemental health insurance, and discount on Inventist products (see www.inventist.com). Reply to cidresumesc@cid-inc.com.

Doctorate/Equivalent Required

California—Research Soil Scientist (Permanent). USDA-ARS, U.S. Salinity Laboratory. The Contaminant Fate and Transport Research Unit, Riverside, California is seeking a permanent full-time Research Soil Scientist to plan and conduct research on behavior of pesticides, pharmaceutical compounds, and other organic agricultural chemicals in soil, water, and air to increase their efficacy and to prevent environmental pollution. U.S. Citizenship is required. Ph.D. is desired. Salary is commensurate with experience (\$75,125 to \$137,242). For information on application procedures visit full vacancy announcement ARS-X9W-0081 at www.ars.usda.gov/careers. For information on application procedures contact Nancy Knap at 951-369-4813. Applications must be received by April 7, 2009. USDA-ARS is an equal opportunity employer and provider.

Indiana—Statistical/Quantitative Geneticist: Trait Genetics & Technologies R&D. Dow AgroSciences is currently hiring a Statistical/Quantitative Geneticist to assist in the development of new products at our corporate headquarters in Indianapolis. The successful candidate will join the Trait Genetics and Technologies group and will work closely with scientists in the company's Seeds and Traits organization. Key job responsibilities will include experimental design, analysis, interpretation and presentation of genetic and statistical studies as well as to act as a guide for the ongoing research process. The candidate will also be expected to identify and implement new quantitative methods that improve the integrity and efficiency of Dow AgroSciences product development cycle. Ph.D. in Statistical/Quantitative Genetics, Statistics or a closely related field with an emphasis on analysis of genetic information, or Masters degree and at least 3 years of work experience in biotechnology, plant / animal breeding or a closely related field, is required. Ability to work with plant and/or animal systems is required. Familiarity with interpretation of genetic studies, marker based genome analysis, marker assisted selection, marker assisted introgression, advanced QTL mapping strategies and field trials is highly desired. Advanced knowledge of plant and/or animal breeding and genetic principles is required. Candidates must apply online at www.dowagro.com/careers (job number 803140) to be considered. Dow AgroSciences is an equal opportunity employer offering excellent career opportunities, as well as competitive compensation and benefits package. We seek motivated individuals to join a growing team in Dow AgroSciences.

Michigan—Assistant Professor: Cropping Systems Agronomist. The Department of Crop and Soil Sciences at Michigan State University invites applications for this 12-month, tenure track, Extension (60%), Research (25%) and Teaching (15%) position. The person in this position is expected to develop innovative research and education programs related to corn (grain and silage), soybean and wheat crop management systems in Michigan. An integrative approach to both extension and research is expected, working with multidisciplinary teams of research scientists, extension specialists, and stakeholders. The research should address key aspects of economically and environmentally sound integrated crop management systems. Primary emphasis will be on applied research and information transfer to clientele

groups. The incumbent will be expected to develop a strong externally funded nationally recognized research program, publish in refereed journals, and train graduate students. The successful candidate also will provide oversight for the corn hybrid testing program and teach an undergraduate course in Advanced Crop Production. A Ph.D. in agronomy or a closely related field is required. Experience in applied research, extension, and teaching is desirable. Candidates should possess excellent communication skills and a demonstrated ability to work effectively with other researchers and clientele groups. Application instructions are available at: www.css.msu.edu/CroppingSystems. Inquires about the position should be addressed to: Dr. Russell Freed, Search Committee Chair, freed@msu.edu, ph. 517-355-0271x1187. The application deadline is April 17, 2009, or until a suitable candidate is identified. MSU is an affirmative action, equal opportunity employer. MSU is committed to achieving excellence through cultural diversity. The university actively encourages applications and/or nominations of women, persons of color, veterans and persons with disabilities.

Minnesota—Assistant/Associate Professor: Soil Science. Assistant/Associate Professor in Soil Science with emphasis in Pedology, Department of Soil, Water, and Climate, University of Minnesota. Tenure-track, 9-month position, 50% teaching / 50% research. Application deadline April 6th, 2009. Qualifications: Ph.D. in soil science, geography, environmental science, earth system science, or related field by date of appointment. See complete position description at <http://www.soils.umn.edu> under "News" for specific qualifications. Applications must be submitted on-line at <https://employment.umn.edu> search for Requisition# 159901. Review of applications will begin on April 6th, 2009. You may contact Dr. Jay Bell, Search Committee Chair, at 612-625-6703 or jaybell@umn.edu. The University of Minnesota is an equal opportunity educator and employer.

Montana—Assistant Professor: Weed Scientist. Montana State University is seeking a weed scientist to develop an applied, field oriented research program focused on weed management strategies for crops of the region including corn, malt and feed barley, sugar beets, wheat, and alternative crops. This is a tenure-track faculty position within the Department of Research Centers, located at the Southern Agriculture Research Center near Huntley, MT. Requires an earned PhD in weed science or related discipline. Applicants must respond to the full position announcement posted at <http://www.montana.edu/cgi-bin/msuinfo/fpview/f/9842-2>. All applicant materials must be received by June 1, 2009. For more information contact Dr. Kent McVay, Southern Ag. Research Center, 748 Railroad Highway, Huntley, MT 59037. kmcvay@montana.edu 406-348-3400. ADA/EO/AA/Veteran's Preference.

Nebraska—Assistant Professor: Weed Ecologist. University of Nebraska-Lincoln, Department of Agronomy and Horticulture invites applications for a Weed Ecologist, Assistant Professor, 12-month, tenure-track position with 50% extension and 50% research responsibilities. Position is located at the West Central Research and Extension Center, North Platte, NE. Successful candidate will lead a research and extension program to develop practices to manage and control invasive species that negatively impact surface water flow and the ecology of Nebraska's surface water systems, and investigations of weed management practices in cropping systems with limited water. GIS and other geo-spatial technologies are expected to be an important component of this work. Leadership in updating and developing management and control practices for invasive species in surface waterways and in rainfed and irrigated cropping systems with limited water will be key components of the extension effort. Contributions to ex-

tension team efforts in Integrated Crop Management and Natural Resources and Environmental Management is expected. Expected scholarship includes communication of research in peer-reviewed journals, presentations at scientific conferences, supervision of graduate student research, publication of extension bulletins/circulars, and development of educational programs that effectively convey research findings to clientele. Proactive efforts to obtain grant funding and graduate students are also expectations. Ph.D. degree, or Ph.D. in place by date of hire, in weed science, agronomy, or a closely related discipline is required. A demonstrated ability to publish original research in peer-reviewed journals, and research experience and expertise in weed management are required. Background in geospatial data analysis is desirable. Ability to work effectively as a member of an interdisciplinary team, and strong written and verbal communication skills are also requirements. Relevant experience in grant writing capability is desired for this position. To review a complete listing of the position description and to apply, go to: <http://employment.unl.edu> and search for requisition #090106 and complete the Faculty Academic Administrative Information Form. Attach a letter of application and curriculum vitae, and arrange for 3 letters of reference to be emailed to: cwendt1@unl.edu by May 15, 2009. Review of applications will begin on May 15, 2009 and continue until the position is filled or the search is closed. The University of Nebraska has an active National Science Foundation ADVANCE gender equity program, and is committed to a pluralistic campus community through affirmative action, equal opportunity, work-life balance, and dual careers.

North Dakota—Department Head and Professor. Head, Department of Plant Sciences College of Agriculture, Food Systems, and Natural Resources North Dakota State University, Fargo, ND This is a 12 month appointment to lead a department of 39 tenure-track and 25 affiliated faculty. Responsibilities include setting and achieving departmental goals, managing departmental resources and personnel, developing budgets, soliciting outside funding, coordinating student recruitment, and representing the department on and off campus. Major program areas for basic and applied research and Extension activities in the department include agronomy, biotechnology, breeding (including the interdisciplinary development of crop cultivars), cereal science, genetics, horticulture, physiology, turf grass, and weed science. The department offers undergraduate degrees in Crop and Weed Science, Horticulture and Forestry, and Sports and Urban Turfgrass Management, and enrolls over 60 graduate students in its M.S. and Ph.D. programs. The department is housed primarily in Loftsgard Hall, completed in 1991. A new, state of the art greenhouse complex is under construction. Qualifications include (1) an earned Ph.D. in a program areas described above, or a closely related field, (2) credentials for rank of Professor with tenure in the department, and (3) evidence of strong leadership, managerial and communication skills. Inter-personal abilities are essential. Preferred qualifications include previous administrative experience, demonstrated ability to attract extramural funding, and familiarity with the Land Grant system. Salary is commensurate with qualifications and experience. Benefits include TIAA/CREF, paid annual and sick leave, and health, life and disability insurance. Screening will begin March 20, 2009, and will continue until a suitable candidate is identified. Candidates must apply online at <https://jobs.ndsu.edu> by submitting: *A letter that describes how the qualifications are met. *A detailed C.V. *A statement of leadership philosophy. *Names and contact information for five references. Contact Dr. Jack Rasmussen (jack.rasmussen@ndsu.edu, 701-231-7058), Search Committee Chair, with questions. North Dakota State University does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veterans status, sexual

orientation, marital status, or public assistance status. Direct inquiries to the Executive Director and Chief Diversity Office, 202 Old Main, 701-231-7708.

Tennessee—Assistant or Associate Professor: Plant Science. In the Department of Agriculture and Natural Resources, College of Agriculture and Applied Sciences, The University of Tennessee at Martin. Full-time, tenure-track appointment effective August 1, 2009. Responsibilities: Effort allocation includes 75 percent teaching in the department and 25 percent in the Center of Excellence. Major teaching responsibilities will emphasize teaching undergraduate classes in the plant sciences as well as participate in collaborative research or public service. Qualifications: Earned Doctorate in Plant Science or a closely related area with a strong background and interest in field crop and forage production systems typical of West Tennessee and the surrounding area. Application Process: Letter of application, a complete curriculum vita including official transcripts of undergraduate, graduate and professional work and the names and addresses of three references (postal and email) to: Dr. Philip Smartt, Chair, Plant Science Search Committee, Department of Agriculture and Natural Resources, The University of Tennessee at Martin, Martin, TN 38238. Phone: 731-881-7221; e-mail: psmartt@utm.edu. Deadline to apply is April 30, 2009. Review of applications is scheduled to begin on May 1, 2009 and continue until a suitable candidate is identified.

Texas—Assistant Professor: Crop Stress Physiology. Appointment: 100% Texas AgriLife Research-Amarillo. 12 month appointment; non-tenure. Will also have an academic appointment with the Soil and Crop Science Department at Texas A&M University in College Station, Texas. General Duties and Responsibilities: The successful candidate will develop a nationally recognized research program in whole-plant crop stress physiology. The person selected will be expected to establish cooperative projects and contribute to multi-disciplinary team research in the areas of biotic and abiotic plant stress. Competence in both traditional and molecular approaches to studying plant stress resistance will be important to the researcher's success. Qualifications: Required by date of appointment: Ph.D. in crop stress physiology, agronomy, plant breeding, genetics or related disciplines. Required Experience: The successful candidate must demonstrate knowledge and research experience in identifying whole plant characteristics and factors associated with biotic and abiotic plant stress resistance. Preferred Experience: Two years research experience past the doctoral program in crop water use efficiency and biotic/abiotic stress relations. Closing Date for Applications: June 1, 2009 Date Position is Available: September 1, 2009, or until filled. Application Process: Please apply online at <https://greatjobs.tamu.edu>. Unit Contact: For more information contact cjmclish@ag.tamu.edu; 806-677-5600.

Texas—Assistant/Associate Professor: Agricultural & Natural Resource Economist. Texas AgriLife Research Appointment: 100% TX AgriLife Research-Vernon, 12-month, non-tenure track. General responsibilities: Conduct research to evaluate economic and natural resource consequences of alternative land management strategies and practices in cropping, forage, livestock and wildlife rangeland management systems in Rolling Plains & Panhandle regions of North West Texas; Involves integrated, team research with faculty at Texas AgriLife Research and Extension Centers at Vernon & Amarillo; link crop, livestock, rangeland, and wildlife management practices with production and sustainability goals, economic costs and returns, water/ecosystem health, and bioenergy potential. The scientist is expected to publish refereed and technical papers, secure grant funding, communicate effectively with collaborators and clientele groups, and supervise

assigned support staff or graduate students. Required Qualifications: Position requires Ph.D. in relevant discipline by date of appointment; demonstrated ability to conduct research, supervise support staff, publish in refereed scientific literature, and acquire significant grants; demonstrated capability to evaluate economic consequences of alternative natural resource/land management choices; excellent written/oral communication and interpersonal skills. Closing Date: April 30, 2009 or until suitable candidate is identified. Available June 1, 2009, or until filled. Application Process: Online applications <http://greatjobs.tamu.edu>; include letter of application, curriculum vitae, college transcripts, and 3 references. Also send hard copy to: Resident Director, Texas AgriLife Research-Vernon PO Box 1658, Vernon, TX 76385; contact: A. Waggoner, 940-552-9941 ext. 236; jawaggoner@ag.tamu.edu. Texas AgriLife Research is an equal opportunity/affirmative action employer and is committed to excellence through diversity.

West Virginia—Assistant Professor: Soil Science. West Virginia University through the Division of Plant and Soil Sciences is seeking to fill a tenure-track faculty position in Soil Science. This is a nine-month appointment at the rank of Assistant Professor. Initial salary will be commensurate with qualifications and experience. Summer salary may be available initially in order to establish a research program, contingent upon the availability of funds. The faculty in this position will be expected to teach an undergraduate course in soil conservation, a graduate course in soil physics (every other year), with the opportunity to develop an additional undergraduate or graduate level course in the individual's area of expertise, consistent with the goals and mission of the Division. It is expected that the person will develop an externally funded research program at the cutting edge of modern soil physics, maintain analytical instruments necessary for his/her research program, and establish a graduate program that is attractive to M.S. and Ph.D. students. Integration and collaboration with the teaching and research objectives of the Division are required. The successful applicant must have a Ph.D. in soil science or a closely related discipline and an established record of research productivity in soil physics as it relates to current problems in the disciplines represented in the College. We seek a broadly trained individual with the ability to apply soil physics principles to solve basic and applied environmental problems. Previous teaching, grantsmanship and research experience are highly desirable. Applicant must have demonstrated ability to communicate effectively with undergraduate and graduate students, colleagues and administrators. The Division of Plant and Soil Sciences is one of five Divisions in the Davis College of Agriculture, Forestry and Consumer Sciences. Disciplines within the Division are Agronomy, Entomology, Environmental Microbiology, Plant Pathology, Horticulture and Genetics. Qualified applicants should submit an application letter (with specific information about disciplinary focus, professional activities and other information relevant to meeting the position qualifications) curriculum vitae, transcripts, and a list of three references to: Dr. Barton S. Baker, Director, Division of Plant and Soil Sciences, West Virginia University, PO Box 6108, Morgantown, WV 26506-6108. Phone: 304-293-4817; FAX 304-293-2960. Electronic applications will not be accepted. Applications will be accepted until May 1, 2009 or until position is filled. WVU is committed to widening its faculty diversity. Women and minorities and those with disabilities are encouraged to apply. West Virginia University is an Equal Opportunity/Affirmative Action Employer.

Postdoctoral Position

Minnesota—Post-Doc or Research Fellow: GIS/Remote Sensing. The position deals with quantification of sediment losses

from bank erosion using airborne LiDAR. Qualifications include a Ph.D. or a Master's degree in GIS, Remote Sensing, Soils, Water Resources or other related fields. Knowledge of ArcGIS and other geospatial tools is a must. Previous experience with LiDAR data processing is desirable. If interested, please post your application at the following web site: <https://employment.umn.edu/> and under Search Postings look for requisition # 160004 for the Post-Doctoral Associate position (PhD required) and requisition # 160003 for the Research Fellow position (MS required). Questions may be directed to Dr. Satish Gupta, Dept. of Soil, Water, & Climate, 1991 Upper Buford Circle, University of Minnesota, St. Paul, MN 55108; email: sgupta@umn.edu; Tel: 612-625-1241.

Internship/Assistantship

Texas—Graduate Fellowship/Assistantship. Bioenergy Research Assistantships. The Soil and Crop Sciences Department, Texas A&M University, is offering assistantships supported through an integrated bioenergy research and development program. The program offers research opportunities concerning evaluation of 1) feedstock traits, productivity, and logistics for mobile pyrolysis systems; 2) properties and management of charcoal byproducts of pyrolysis, including effects on soil and environmental quality; and 3) relationships among feedstock properties, pyrolysis conditions, and yield and quality of charcoal and bio-oil. A PhD assistantship, supported by a USDA National Needs Fellowship for minorities who are US citizens, will offer \$24,000 annually plus \$34,000 of scholarship support from the Alfred P. Sloan Foundation over 3 yr. A M.S. assistantship, supported by a DOE SunGrant, offers an annual stipend plus health insurance (\$22,000) with a tuition supplement over 2 yr. Contact Donald M. Vietor (dvietor@tamu.edu) or Tony L. Provin (tprovin@ag.tamu.edu), Soil and Crop Sciences Department, Texas A&M Univ., College Station Texas. Apply online: <http://admissions.tamu.edu/graduate/default.aspx>.

Good Times, Bad Times *(continued from page 25)*

posed of ASA–CSSA–SSSA members and led by veterans of our Congressional Visits Day activities. CCST members are provided guidance by their team leaders and the science policy office (SPO) so that, when contacted by the SPO and asked to take action, they will be able to contact their representative and/or senators to seek increased funding for AFRI. Please contact me for assistance if you are interested in getting involved and serving on your state/district CCST.

The challenges and opportunities facing the nation's agricultural system are enormous. Crop yields must increase substantially, and the chemistry, biology, and physical properties of the soil need to be better understood to provide for a growing world population, produce renewable energy, and mitigate climate change. And these multiple goals must be met while protecting invaluable ecosystem services. If these challenges are to be achieved and opportunities exploited, there must be a renewed federal investment in the agronomic, crop, and soil sciences. Increased support for these sciences will only occur if the agricultural community comes together. Action by our citizen scientists will also be required. The question is can our community come together and speak as one?

What Farmers Think

by Luther Smith

I attended the National Conference for Agribusiness sponsored by the Center for Food and Agricultural Business at Purdue University last November. The two-day event featured the 2008 Large Commercial Producer Survey and was packed with data and interviews with farmers trying to help agribusinesses better understand how they could do business with larger-scale producers. We heard from the producers and the ag retailers who serve them. There were data and discussions profiling today's large commercial producer and on topics such as offering value in multiple market segments, influencing value perceptions, and maintaining a local presence.

There was also a session titled "Delivering the Promise through Our People," which I focused my attention on. ASA and SSSA certify professionals in agronomy and soil science. Certified crop advisers (CCAs) are our largest group, and the majority of CCAs work for an ag retail or farm cooperative business serving producers. Naturally, I was very interested in learning more about how producers and, in this case, large scale producers view their advisers.

Since the CCA program was started in 1992, we have always looked for ways to measure the influence and the value of certification from the producer's perspective. The catalyst for the program's creation were some impending regulations in the early 1990s that would have mandated that someone who sold agronomic inputs (products) could not also provide advice and vice versa. The formation of ASA's ICCA program through the hard work of many volunteers in industry, academia, and government prevented that from happening, but even today, the regulatory threat still remains. Certification raises the level of professionalism, knowledge, and

skills that should lead to increased performance for the producer. Although what started the CCA program may be viewed as more of an industry initiative, ultimately, the clients and customers of CCAs become the clients and customers of the certification process.

The "people" segment of the data presented in the above-mentioned session evaluated characteristics of salespeople and their activities. Thinking of the best salesperson that they knew, the producers were asked to rank the following characteristics as being the most important: being a friend, representing my interests, knowing my operation, being technologically competent, and being honest. Of those characteristics, honesty was ranked the highest followed by technological competency. Being a friend was ranked fifth, but we also heard from producers who described their salesperson/adviser as becoming a close friend over time to the point of even taking vacations together. An honest and technologically competent salesperson/adviser is what larger-scale producers highly value according to this survey, and the certification programs strive to ensure both through the code of ethics (honesty) and continuing education requirements (technological competency).

The producers were also asked to rank the following "activities" of their best salesperson: provides good follow-up, relevant/timely information, the best price, access to supplier resources, innovative ideas, consultation, and frequent calls. Good follow-up was ranked number one followed by relevant/timely information and best price, respectively. According to this data, an honest, technologically competent adviser who follows

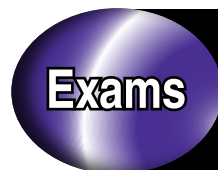
through with relevant/timely information is what large-scale producers truly value. In reality, I think you could say all producers would value those things.



Ag retailers/dealers were also asked to rank the same set of activities. Producers and ag retailers both highly ranked providing relevant/timely information. On the other hand, calling frequently was not highly ranked by the producers, but it was among the ag retailers. One producer said, "[There are] plenty of salespeople...[I have] no time for salespeople, but I do have time for or need better information, ideas, innovation, [and] help making it work or interpreting the data." So, it's not how "often" the adviser sees the client, but what the adviser brings to the producer when they do make the call.

The relationship that advisers have with their clients was considered very important. One question that was asked was do producers value their relationship with the salesperson that they buy expendable items from more than the relationship they have with the companies that the salesperson represents? Sixty-two to 68% of the respondents, depending on size of the operation, indicated that they agreed or strongly agreed that producers value the relationship with the salesperson more than the company that the salesperson represents. The people that make up an organization are still the most valuable resource a company has to offer regardless of the size of the farming operation.

L. Smith, Director of Certification Programs; lsmith@agronomy.org or 608-268-4977.



CCA exam: 7 Aug. 2009. Registration opens 4 May 2009. See www.certifiedcropadviser.org/become-certified/exams. CSSE soils exam: 17 Apr. 2009. Registration closed. See www.soils.org/csse.

Dig It! Readies for 2010 National Tour

Dig It! *The Secrets of Soil*, which opened to rave reviews at the Smithsonian's National Museum of Natural History in July 2008, will begin its Smithsonian Institution Traveling Exhibition Service (SITES) tour in the summer of 2010. *Dig It!* explores the often overlooked but critical world of soil right beneath our feet. A vital link between the earth's air, water, and other living systems, soil helps sustain virtually every form of life on earth.

"*Dig It!* focuses on processes and connections," explains Barbara Stauffer, the museum's chief of temporary exhibits. "Our goal was to show that soil is anything but brown and boring."

One of the exhibition's highlights—54 soil samples, or monoliths, representing each state, the District of Columbia, the U.S. Virgin Islands, Guam, and Puerto Rico—graphically illustrates soil's vast diversity in color, materials, and texture.

To help convey processes, the *Dig It!* team invested heavily in video and interactive technology. The generous multimedia budget covered the creation of 12 components including videos and kiosk interactives by developer Boston Productions, ensuring a consistent look and feel. Ranging from playful to sophisticated, the kid-friendly films were beta-tested and approved by museum staff members' young children—and drew laughs from museum director Cristian Samper and the Smithsonian's new secretary, G. Wayne Clough.

On the silly side is Chef's Challenge, an Iron Chef-style cooking competition that pairs animation with live actors. It's a lighthearted way to get across the message that soils are varied and form over time.

The Matters of Life and Death whodunit video uses plenty of CSI-style laboratory theatrics and "gross-out" moments to convey that soils contain a vibrant, living world. Other videos and interactives portray different aspects of soil, from the global level to our own backyards.

Everything in the exhibition is modular and designed to travel. The soil monoliths can be configured in multiple ways, the topographical models are easily moved by palette jacks, and all the cabinetry is finished in the back for more placement options. And it's extremely durable, with interactives and touch screens getting an exhaustive workout by more than three million people during its 18-month run at the museum, concluding on 3 Jan. 2010.

"SITES venues can be guaranteed that everything has been thoroughly field tested," notes museum project manager Siobhan Starrs.

The national tour of *Dig It!* is made possible by the Nutrients for Life Foundation and SSSA as the Founding Sponsor. Additional support is needed for the traveling tour. Please contact Paul Kamps at 608-268-4975 or pkamps@soils.org.

—SOURCE: *The Smithsonian Institution Traveling Exhibition Service, www.sites.si.edu*



Help Place 100 of SSSA's New Kids' Book on Soil in the Hands of Envirothon Teams!

The Canon Envirothon is North America's largest environmental education competition, and we have the opportunity to provide them with 100 copies of SSSA's new kids' book, *Soil! Get the Inside Scoop*. Using the form at www.soils.org/smithsonian/files/envirothon.pdf, purchase books for \$20 (includes shipping to the teams) by 1 May, and we'll make sure they're donated and shipped to them in time for the national competition in Asheville, NC. Help us reach our goal of 100 books (one for each team) by purchasing yours to donate today.

The Envirothon is an environmental education program designed to enhance a student's problem-solving and critical-thinking skills. Students in grades 9–12 participate in local and state/provincial competitions throughout the U.S and Canada. This annual competition offers both in-class curriculum and hands-on field experiences in which winning teams compete for recognition and scholarships by demonstrating their knowledge of environmental science and natural resource management. The competition centers on four universal testing categories (i.e., soils/land use, aquatic ecology, forestry, and wildlife) and a current environmental issue. This year's issue is, "Biodiversity in a Changing World." For more information, visit www.envirothon.org.



Student & Career Activities

SASES

Congratulations to Outstanding Seniors

The 2009 National Student Recognition Program recognizes 30 outstanding seniors enrolled in agronomic, crop, soil, or environmental science departments that have active chapters affiliated with the Students of Agronomy, Soils, and Environmental Sciences (SASES), an undergraduate student program of ASA, CSSA, and SSSA. Each year, top-notch seniors are selected for the award based on their scholarship, leadership, and participation. The students receive a plaque as part of their recognition.



Amber N. Brewé
Oklahoma State Univ.



George N. Browning III
Univ. of Tennessee-
Martin



Rachael Cox
Iowa State Univ.



Katie Dale
Washington State Univ.



Jeremy Flikkema
Univ. of Wisconsin-
Platteville



Andrew J. Friskop
North Dakota State
Univ.



**Amanda Garzio-
Hadzick**
Univ. of Maryland



Erin Grantz
Univ. of Arkansas



James J. Hartsig
Univ. of Tennessee-
Knoxville



Katherine A. Hurder
Virginia Tech



Michael A. Johns
Colorado State Univ.



Ian Leslie
California Polytechnic
State Univ.



Joshua D. Martin
Auburn Univ.



Glenn D. Martus
Michigan State Univ.



Keith Mellert
Univ. of Illinois



Timothy Merta
Texas A&M Univ.



Eric C. Miller
Purdue Univ.



Zachary T. Murphy
Univ. of Georgia



Kellar Nelson
Univ. of Missouri



Sara A. Dyler
Penn State Univ.



Julia M. Pedersen
Oregon State Univ.



Will Phillips
Tennessee Technological Univ.



Kelli A. Rastede
South Dakota State Univ.



Sam Redeker
Univ. of Wisconsin-Stevens Point



Scott Rowntree
Univ. of Wisconsin-Madison



Joshua L. Scott
Murray State Univ.



Darrin Seiwert
Kansas State Univ.



Rachelle Thorne
West Virginia Univ.



Sarah Ulloa
Cal Poly Pomona



Matthew Vann
Univ. of Florida

5 May Deadline for SASES Contests

National Student Club Poster Contest. Showcase your club's projects and activities through the National Student Club Poster Contest and win up to \$300! Clubs will receive recognition for promoting agronomic, crop, soil, and environmental sciences on their college campus or in their local community. Posters will be judged and displayed during the Annual Meetings in Pittsburgh.

The contest provides a unique opportunity to show ASA-CSSA-SSSA members what clubs are doing through a professional presentation. It also gives students a chance to interact with these members at the meetings. To enter the contest, submit an abstract at www.acsmeetings.org in Division Z00 and select "National Student Club Poster Contest." Contest rules can be found at www.agronomy.org/students/contests, www.crops.org/students/contests, and www.soils.org/students/contests.

National Student Research Symposium Contest. Develop your research skills and competitively present those research findings to an audience of scientists and professionals in Pittsburgh! The National Student Research Symposium Contest is an excellent way for students to showcase their abilities to prospective graduate advisers and employers by conducting research, analyzing the data, and preparing the information for a public and competitive presentation to judges.

Students receive cash awards for the top three places in each poster or oral session. Submit an abstract at www.acsmeetings.org in Division Z00 and select "National Student Research Symposium Poster Contest or Oral Contest." Also submit a certification sheet to the contest adviser, Rob Rhykerd from Illinois State University (email:

rrhyker@ilstu.edu or fax: 309-438-5653). Contest rules can be found at www.agronomy.org/students/contests, www.crops.org/students/contests, and www.soils.org/students/contests.

CSSA Golden Opportunity Scholars Institute Seeks Applications

Do you have an outstanding student who is interested in crop science, seeks to work with a mentor, and needs financial help to attend the Annual Meetings? If so, take advantage of the 2009 CSSA Golden Opportunity Scholars Institute program, which will match undergraduate students with Society professionals at the Pittsburgh Annual Meetings. Student scholars will receive financial support for travel, lodging, registration, and other costs related to attend the meetings.

Started in 2006, this professional development program is aimed at strengthening the crop science profession by encouraging students to enroll in crop science-related programs, with the intent of having them become the next generation of leaders in the profession. Students from all over the U.S. and the world will be selected. Benefits include:

- Engaging in one-on-one activities with mentors
- Listening to presentations from high-profile scientists
- Gaining exposure to many disciplines in crop science
- Attending undergraduate student programs
- Being recognized during the CSSA Awards Program
- Participating in a year-round mentoring network

Undergraduate students can apply by completing the application found at www.crops.org/scholars. The deadline to send applications is **16 Apr. 2009**.

The program was developed by CSSA as part of its 50th Anniversary in 2005 and is supported by the Golden Opportunity Fund through the Agronomic Science Foundation. For information about the program and application procedures, contact Leann Malison at 608-268-4949 or lmalison@agronomy.org.



Gerald O. Mott Award Honors Top Graduate Students in Crop Science

Eight students have been named to receive the 2009 Gerald O. Mott Meritorious Graduate Student Award in Crop Science. This annual award recognizes top-notch graduate students pursuing advanced degrees in crop science disciplines. Departments select students based on

- academic achievements,
- research and teaching contributions,
- leadership accomplishments,
- service activities, and
- personal qualifications.

The award is offered by CSSA, and recipients receive a certificate and the opportunity to apply for the Gerald O. Mott Scholarship. The award is named after the first CSSA president, Gerald O. Mott, who trained 75 graduate students during his 45-year career at Purdue University and the University of Florida. Many of his students have become eminent forage scientists in the United States and Latin America.



Carlos Acuna
Univ. of Florida



Sanjeev K. Bangarwa
Univ. of Arkansas



Daniel Edmonds
Oklahoma State Univ.



John C. Frihauf
Kansas State Univ.



Patricio Grassini
Univ. of Nebraska



Catherine B. Kandianis
Univ. of Illinois



Kerry L. Mayfield
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Soil Carbon Sequestration and the Greenhouse Effect, 2nd edition

Soil Carbon Sequestration and the Greenhouse Effect

Rattan Lal & Ronald F. Follett, Co-editors
SSSA Special Publication 57, second edition

“Through this publication, the Soil Science Society of America is pleased to provide the platform for guiding the future research agenda on soil carbon sequestration, as well as contributing to the scientific knowledge base required to guide future public policy decisions. Congratulations to Dr. Rattan Lal and Dr. Ronald Follett for producing such an excellent and timely publication.”

Paul M. Bertsch, President, SSSA

The concept of the Greenhouse Effect is more than a century old, but today the observed and predicted climate changes attributed to anthropogenic increases in atmospheric CO₂ more urgently beg the question, what can be done? The second edition of *Soil Carbon Sequestration and the Greenhouse Effect* is essential reading for understanding the processes, properties, and practices affecting the soil carbon pool and its dynamics.

A timely update of the concepts, practices, and supporting data, all chapters are new contributions by both authors of the first edition and new invited authors. The expanded second edition includes 23 chapters, with a substantial new introduction and a concluding chapter. New themes addressed are urban soils, minesoils, biochemically recalcitrant compounds, carbonaceous materials, belowground carbon storage by woody plants, and peat soils. The geographic focus of the book is North America, with important chapters from Canada and Mexico. Thematically, the second edition encompasses data from modeling, lab analyses, plot studies, landscape assessment, and regional evaluation of soil carbon pools and fluxes.

2009, Softcover, 452 pages
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- Bruce Alberts, *Science* editor-in-chief: “Why Redefining Science Education is the Key to Enhancing the Public Understanding of Science”

PLENARY PRESENTATIONS

- May R. Berenbaum, Department of Entomology, University of Illinois at Urbana-Champaign
- Fred Gould, Department of Entomology, North Carolina State University: “From Transgenic Crops to Transgenic Pests: How Can AgBiotech Be Green?”
- Hans R. Herren, Millennium Institute, Arlington Virginia: “Sustainable Agriculture and Food Security: The wake-up call for change”
- Taylor H. Ricketts, Conservation Science Program, World Wildlife Fund—USA: Agriculture and conservation
- Scott M. Swinton, Department of Agricultural, Food, and Resource Economics, Michigan State University: Agriculture and ecosystem services
- Robert Tauxe, National Center for Zoonotic, Vector-borne, and Enteric Diseases; Centers for Disease Control and Prevention: Foodborne diseases

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WORKSHOPS

- National Association of Biology Teachers and the Biological Sciences Curriculum Study
- AIBS Public Policy Office: *Communicating Science: A Primer for Working with the Media*

BREAKOUT DISCUSSIONS AND EVENTS

- Biofuels
- Public understanding of the food supply and genetically modified foods
- National Academies’ report on agriculture and undergraduate science education
- Year of Science 2009 discussion
 - Student poster session
 - AIBS annual awards
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Image: *The Fields*, Vincent van Gogh, 1890

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