



SWES SOUNDS

THE UNIVERSITY OF
ARIZONA
COLLEGE OF AGRICULTURE
AND LIFE SCIENCES

The Heartbeat of the Department of Soil, Water & Environmental Science

January 2007

Vol. 25,

Issue 1

Shantz Bldg. 38, Rm. 429

<http://ag.arizona.edu/SWES/>

Tucson, AZ 85721

TONES FROM THE TOOTH



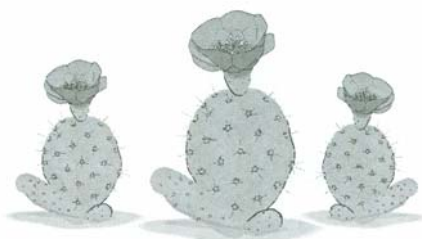
Dr. Paul Brown

There are two pieces of exciting news to emphasize this month. First, I am very happy to report that our newest Soil, Water, and Environmental Science (SWES) Department Faculty, **Marcus Tuller** has arrived. Dr. Tuller comes to us from the University of Idaho, Moscow, Idaho. He will take off running by teaching our Soil Physics Class in the spring with Dr. Marcel Schaap. Dr. Tuller's office is in 526 Shantz, freshly painted in welcome.

Second, I am pleased to announce that Dr. Ian Pepper, a professor in SWES, was recently named as a new Fellow with the American Association for the Advancement of Science (AAAS). This is an outstanding honor for Dr. Pepper. We all know very well that Dr. Pepper directs an excellent program in Environmental Microbiology. This award demonstrates that he is very well recognized by his peers nationally and internationally. He is a leader in his field and he established an outstanding record of achievement. He is truly a deserving recipient.

Please join me in congratulating Dr. Pepper for this tremendous honor. I know that being recognized as an AAAS Fellow means a lot to him and I also know that he appreciates the recognition that we offer to him here at home in the SWES Department as well. We are very proud of Dr. Pepper and his work and contributions to the SWES Department, CALS, and the UA. So the next time you see him, congratulate him, and let him know that we appreciate his accomplishments.

Jeffrey C. Silvertooth
Department Head



FEATURED FACULTY

A major focal point of the Extension Biometeorology Program (EBP) is the operation of the Arizona Meteorological Network (AZMET) -- a near-real time weather information system that provides meteorological data and weather-related information to agricultural producers, turf managers, consultants, government agencies, the research community, and the general public. Meteorological data required for AZMET is obtained from a network of 28 automated weather stations located throughout Arizona. Data and information generated by AZMET are made available to the public free of charge via the Internet (<http://ag.arizona.edu/azmet>).

Research conducted within the EBP is focused on developing informational products that utilize weather data collected by AZMET. For more than a decade, we have been working with government agencies, urban water conservation groups, and the turf industry on research studies aimed at: 1) defining the water requirements of desert turf systems and 2) developing improved irrigation management strategies for turfgrass. Through our efforts in research we have been able to: 1) define the water requirements of the standard desert bermudagrass turf system, 2) develop crop coefficients for this turf system that can be used in conjunction with reference evapotranspiration (ET_o) data to estimate turf water use, 3) examine the impact of advection (horizontal transport of heat from adjacent dry surfaces) on turf water use, 4) evaluate the validity of Arizona Department of Water Resources (ADWR) turf water duties, and 5) initiate soil salinity surveys on selected golf courses in the Tucson and Phoenix areas. An important aspect of any Extension program is public dissemination of relevant information derived from research. AZMET, with support from the City of Phoenix, ADWR, TRIF and the Golf and Environment Foundation, produces Lawn Watering Guides and location-specific turf water use reports for Phoenix, Tucson and selected locations in northern Arizona each day. The public may access these reports free of charge via AZMET's Turf Water Management Web Site.

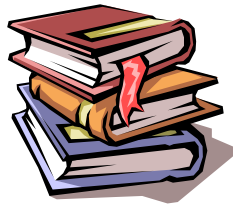
The EBP is also actively involved in a cooperative project with the Bureau of Reclamation (BR) to improve and/or refine estimates of crop water use along the Lower Colorado River. The Supreme Court has required BR to account for water use

along the River and BR has developed the Lower Colorado River Accounting System (LCRAS) to address this mandate. LCRAS uses remote sensing to identify the various crop types along the river and AZMET's ETo data and appropriate crop coefficients to estimate crop consumptive use. The EBP's role in LCRAS is to: 1) develop the LCRAS ETo data sets for use by the BR, 2) investigate how siting of weather stations may impact values of ETo computed from meteorological data, and 3) provide technical training on ETo and LCRAS for area water users.

Production agriculture represents another important focal point for the EBP. AZMET and its varied agricultural partners have developed a solid and productive partnership over the past 20 years, and today, AZMET is intimately involved in the development and/or distribution of several weather-based products of assistance to growers. Among the more popular products are Weekly Cotton Advisories, Southeast Arizona Crop Water Use Reports, Cotton Heat Stress Reports and the Small Grains Advisories.

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SWES REPORT CARD:



PUBLICATIONS:

Lazarovitch, N., U. Shani, T. L. Thompson and A. W. Warrick. 2006. Soil hydraulic properties affecting discharge uniformity of gravity-fed subsurface drip irrigation systems. *J. Irrig Dr. Eng.* 132:531-536.

M. Susana Yepiz-Gomez, Kelly R. Bright, and Charles P. Gerba. 2006. Identity and numbers of bacteria present on tabletops and in dishcloths used to wipe down tabletops in public restaurants and bars. *Food Protection Trends* 26:786-792.

Drees, K.P., J.W. Neilson, J.L. Betancourt, J. Quade, D.A. Henderson, B.M. Pryor, and R.M. Maier. 2006. Bacterial diversity in the hyper-arid core of the Atacama Desert, Chile. *Appl. Environ. Microbiol.* 72:7902-7908.

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PRESENTATIONS:

Chris Rensing gave an invited talk entitled *Understanding the molecular genetics of the global arsenic cycle*. University of Texas Pan American, Edinburg, TX, December 7th.



Warrick, A. W. and N. Lazarovitch. "Infiltration from Surface Disc and Strip Sources". World Congress of Soil Science, Philadelphia, PA. July 9-15, 2006.

Lazarovitch, N., M. Poulton, A. Furman and A. W. Warrick. "Simulation of Water Distribution Under Drip Irrigation with Artificial Neural Network". ASA-CSSA-SSSA International Meetings, Indianapolis, IN. Nov. 12-16, 2006.

Warrick, A. W., N. Lazarovitch, A. Furman, and J. Simunek. "Subsurface Water Distribution Described by Moment Analyses." Meetings of the American Geophysical Union. San Francisco, CA. Dec. 11-15, 2006.

The following were presented at the 2006 Annual NIEHS Superfund Basic Research Program Meeting in San Diego, CA, Dec. 11-12.

Maier, R.M. "Phytostabilization of mine tailings in arid and semi-arid environments". (invited talk)

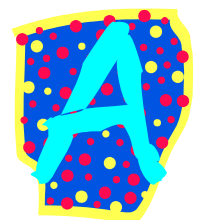
Grandlic, C.J., M.O. Mendez, and R.M. Maier. "Evaluation of potential plant growth-promoting bacteria and their use to enhance *Atriplex lentiformis* growth in acidic mine tailings". (invited talk)

DiFilippo, E.L., J.C. Marble, and M.L. Brusseau. "Investigation of mass flux reduction as a function of source zone mass removal for immiscible liquid contaminated aquifers". (poster)

Ramirez, M., D.M. Ramirez, M.L. Brusseau, J.F. Artiola, J.A. Field, and A.J. Gandolfi. "Dynamically defining research translation and outreach (RT/O): the impact of the University of Arizona Superfund Basic Research Program's RT/O Cores". (poster)

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SWES NEWS:



CONGRATULATIONS!!

Eileen Finnerty-Rae ran a half-marathon in October with a time of 1:56:17 and was able to raise over \$1,500 for the Leukemia and Lymphoma Society and ran Dec 10 for the Ronald McDonald House of Southern Arizona and has been able to raise over \$925 for that charity.

Chris Grandlic (Dec. 7) and Sarah Hayes (Dec. 8) both passed their oral preliminary exams.

PLANE TALK FROM ERL

Ian Pepper, Director

As 2006 draws to a close, we are embarking into a new research venture. This research area is real-time monitoring of contaminants in water distribution systems. Initially we are interested in real-time monitoring of biological contaminants including bacterial and protozoan pathogens. Therefore we have just purchased a BioSentry Unit from JMAR Technologies that utilizes "Multi-Angle Light Scattering" (MALS). Essentially a laser beam is used to strike individual particles within water, generating unique light scattering patterns. A comparison of these patterns with a computerized database of patterns from known pathogens allows detection of potential waterborne pathogens. Initially we will evaluate the technology for specificity and sensitivity of detection of *Cryptosporidium*, *E. coli*, and *Bacillus* spores. Ultimately we plan to use the BioSentry Unit for studies on microbial dispersion and transport utilizing Chris Choi's model distribution network in House #2 of the Water Village. So, although we wish everyone happy holidays, we can't wait for 2007—it's going to be exciting.



BUSINESS OFFICE

Suzy Brown



The copier in FCS Room 205 owned by CALS will be removed on March 31, 2007. The SWES Business Office is working with the FCS Business Office, to see if the copier can be replaced.

Beginning with the 2007-2008 academic year, the number of pay periods for individuals on academic contracts and academic work schedules will be reduced from 22 to 20. This change is being made to coordinate pay dates with contract dates, reduce conflicts with supplemental compensation funded by sponsored projects, and ensure the timely completion of federally required employment forms.

An email announcement from Provost and Executive Vice President, George Davis and Associate Vice President of Human Resources, Allison Vaillancourt was distributed to all academic faculty, professionals and graduate assistants/associates. (If you represent one of the few departments employing academic classified staff, please ensure that they receive a copy of this information.)

Please visit the Human Resources web site (<http://www.hr.arizona.edu>) to view a copy of the

announcement, implementation information, a milestone calendar, and a list of contacts for those with additional questions.

FOOD FOR THOUGHT:

By weight, the sun is 70% hydrogen, 28% helium, 1.5% carbon, nitrogen, and oxygen, and 0.5% all other elements.



A galactic year is 250 million Earth-years. This is the time it takes for our solar system to make one revolution around the Milky Way Galaxy.

Hydrogen is the most common atom in the universe.

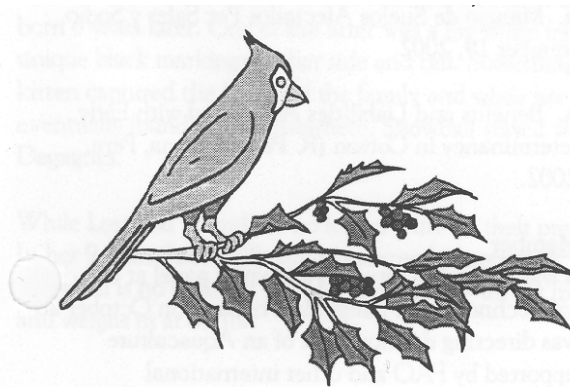
Google receives more than 200 million search queries a day, more than half of which come from outside the United States. Peak traffic hours to google.com are between 6 a.m. and noon PST, when more than 2,000 search queries are answered a second.

In 1903 Mary Anderson invented the windshield wipers

In Australia, a dust devil is called a "willy-willy."

In February 1878, the first telephone book was published in New Haven, Connecticut. The book was one page long and had fifty names in it.

<http://www.amusingfacts.com/>



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<h1>January 2007</h1> 						
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i> 	<i>6</i>
<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i> WELCOME BACK!!! <i>First day of classes!!</i>	<i>11</i>	<i>12</i> ETRs Due at noon TODAY	<i>13</i>
<i>14</i>	<i>15</i> No classes!! MLK Day!!	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i> 	<i>20</i>
<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i>	<i>26</i> ETRs Due at noon TODAY	<i>27</i>
<i>28</i>	<i>29</i>	<i>30</i>	<i>31</i>			

NEWSLETTER TEAM: **Raina Maier, Ph.D.**
Editor

Brooke McCord
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