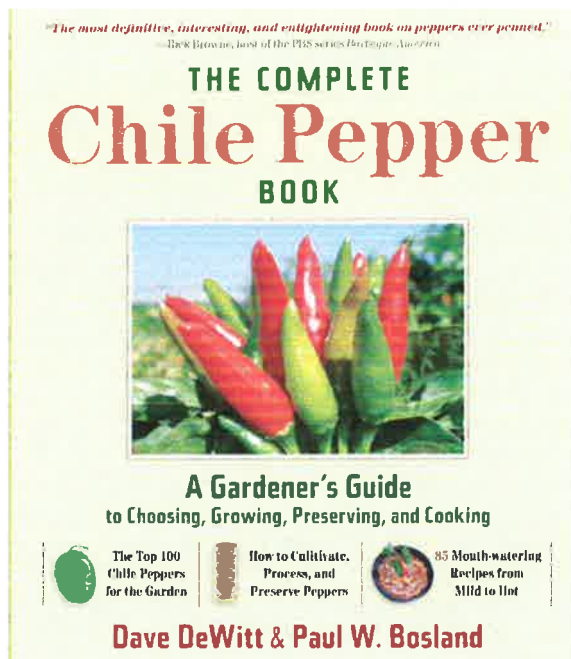


Dr. Bosland and Dave DeWitt Publish New Chile Pepper Book

For more information: Paul Bosland (pbosland@nmsu.edu), 575.646.5171.



Our resident Chile expert, Paul W. Bosland and Dave DeWitt have assembled all the information that anyone with an interest in chile peppers could ever hope to find. Detailed profiles of the 100 most popular chile varieties include information on how to grow chiles; how to diagnose and remedy problems, pests, and diseases; and post-harvest processing and preservation. The book culminates in 85 mouth-watering recipes that make brilliant use of both the characteristic heat of chile peppers and of their more subtle flavor qualities. Want to know what the hottest chile pepper in the world is? You'll find it in the fascinating story of 'Bhut Jolokia', acknowledged by Guinness World Records as the fieriest chile on earth. Confused about the identity of those chile peppers you bought? The authors' clear photographs and precise descriptions will clear up the mystery. *The Complete Chile Pepper Book* is the only guide to chiles you'll ever need. It's a scorcher. Copies are available at the Chile Pepper Institute.

Paul Dave DeWitt is producer of the National Fiery Foods & Barbecue Show in Albuquerque, and one of the

founders of Chile Pepper Magazine. In addition, he is the president of Sunbelt Shows, Inc. and a founding board member of New Mexico State University's Chile Pepper Institute. At NMSU he established the Dave DeWitt Chile Pepper Institute Endowed Fund at the New Mexico State University Library. The endowment will be used to process, preserve and make accessible to the public the collection of materials that DeWitt has donated to the Library.

The endowment will also be used to process, preserve and make accessible to the public other collections or materials which enhance and complement the collection.

Awards:

Paul Bosland Elected for NM Distinguished Public Service Award

For more information: John Mexal (jmexal@nmsu.edu), 575.646.3335.



Left to right: Garrey Carruthers, Paul Bosland, David Cargo and Dan Lopez, president of New Mexico Tech.

Paul Bosland, professor of plant and environmental sciences, has been selected one of the 2009 New Mexico Distinguished Public Service Award recipients. He will receive his award on Nov. 12 at the Marriott Pyramid Hotel in Albuquerque. The award recognizes outstanding contributions to public service and the improvement of government. Bosland won in the "state government and universities" category. Nominees fall into four categories – federal agencies and national laboratories; state agencies and universities; local and Indian governments; business and civic organizations. The award program is co-chaired by Gov. Bill Richardson

Besides Dr. Bosland, nine other New Mexicans received the distinguished New Mexico Distinguished Public Service Award as well: 1. Nella Guenther of Los Lunas has been a prolific community volunteer for more than two decades and established an area substance abuse program. 2. Imogene Lindsey of Albuquerque is an advocate of civil liberties in the states. 3. Fred Lujan, former governor of Isleta, has served as a consultant on pueblo affairs. 4. Rev. Msgr. Jerome Martinez y Alire of Santa Fe founded a task force on AIDS-related ministries. 5. Brett Newberry of Gallup is credited with leading a variety of organizations and initiatives to improve the quality of life in western New Mexico. 6. Anthony Ortiz of Socorro has helped run, organize and increase participation in the statewide NM Science and Engineering Fair and the NM Science Olympiads. 7. Tony Trujillo of Silver City has worked on various educational and economic developmental initiatives. 8. Facundo Bernabe Valdez of Las Vegas has been credited with instrumental work on mental health conferences dealing with the state's Native American population among others things. 9. Carolyn E. Zerkle of Las Alamos National Labs, most recently directed an upgrade of cybersecurity there.

Since its inception in 1979, 427 citizens of New Mexico have been publicly recognized for their outstanding contribution to public service.

Outreach

Greenhouse Tear-Down for the Small Farm Institute

For more information: Jeanine Castillo (rjcanine@nmsu.edu), 575. 202.8728.



Building the Small Farm Institute from the “greenhouse up” is one goal in mind when targeting in-kind giving to the college of ACES. The SFI was the recipient of greenhouse and shade house structures from Guzman’s Greenhouse and Nursery on University Avenue. With the help of Mark Gladden, ACES Major Gifts Officer and realtor, Tom Whatley, this in-kind gift was donated by Mr. Danny Villanueva. Villanueva, a native of Tucumcari, NM attended NMSU on a football scholarship. In 1999, NMSU

awarded him an honorary doctorate. He and his wife, Myrna, have funded the Villanueva Victory Club in the Stan Fulton Center as well as Myrna’s Children’s Village and many other programs at NMSU. We thank Mr. Villanueva for his generosity.

Faculty and students removed the greenhouse over a two day period during a beautiful and sunny November Las Cruces weekend. The greenhouse will be rebuilt on land dedicated to the SFI. Many thanks to Jeanine Castillo, SFI coordinator, for coordinating efforts and to Linda Meyer, Jo Vasquez, Drs. Mark Uchanski and Kulbhushan Grover.

Students helping on the project included: Pradip Adhikari, Sarah Casson, Lydia Fisher, Amir Gonzalez, Shenly Leon, Tony Rios, Lori Kae Schwab, Parmodh Sharma, Samuel Diaz, Nick Adams, Kyle Fletcher, Lisa Darby, and Monica Dominguez. The students were very appreciative of the experiential learning component of the project and their sweat equity was appreciated by their professors. Thank you!

The Chile Pepper Institute teamed up with HRTM on October 1 to host a "Holy Jolokia Cook-off"

For more information: Paul Bosland (pbosland@nmsu.edu), 575.646.5171.



▲ Mark Gladden, Michael Ty, John Hard and Paul Bosland talk about the tasty and fiery dishes.



◀ One of the desert recipes created by students.

The purpose of the cook-off was to give HRTM culinary students a chance to create unique recipes using the Holy Jolokia hot sauce and to provide more awareness for the Holy Jolokia fundraising project. Student teams, captained by Chef's Zeck & Hartley as well as a local "celebrity" chef, Chef Tatsu used Holy Jolokia Hot Sauce to create signature dishes in everything from ice cream to lamb chops. John Hard, creator of Holy Jolokia hot sauce, owner of CaJohn's Fiery Foods and member of the Chile Pepper Institute was on hand to sample all of the Fiery Dishes. Chef Michael Ty, President of the American Culinary Federation was also on hand to sample the dishes. The event was held in the Cafe West with over 30 chile processors and business owners from the Las Cruces area.

The 2009 International Annual Meetings, ASA-CSSA-SSSA, November 1-5, 2009, Pittsburgh, PA

Water Fluxes Through the Vadose Zone of an Onion Field

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The presence of temperature gradients in unsaturated soils may induce water fluxes in gas and liquid phase that can significantly contribute to the water and energy transport processes. The liquid flux is important and dominates the water movement during the irrigation event when the water content is close to saturation, while the vapor flux dominates during soil drying. Hydrus-1D was used to simulate coupled heat, water vapor, and liquid water transport through soil. Real-time TDR and thermocouple sensors were used to monitor soil water content and temperature at various depths. Meteorological data (precipitation, relative humidity, air temperature, wind speed, and solar radiation) were available on an hourly basis from the NM Climate Center. Numerical simulations using Hydrus-1D adequately simulated the coupled soil and energy budget for the study site. Preliminary simulations showed that an upper dry and a lower wet zone could be distinguished near surface and vapor flux was much higher in the layer closer to the surface.

Nitrate-Nitrogen and Chloride Leaching in Onion Under Furrow and Drip Irrigation Systems

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Water is a limited resource for crop production in arid and semi-arid climates. The purposes of this study were to estimate: (1) the amount of NO₃-N leaching below the root zone, (2) the leaching fractions and (3) irrigation efficiencies (4) NO₃-N, Chloride and water balance for two onion fields under furrow and drip irrigation systems located in the Mesilla Valley of Southern New Mexico. The monthly soil samples collected up to a depth of 110 cm were analyzed for nitrate-nitrogen and chloride. Soil samples were also collected twice during the growing season at 1.5 and 2 m depths from both fields. The total amounts of N fertilizer applied to furrow and drip irrigated fields were 383 and 292 kg ha⁻¹, respectively. A total amount of 92 and 81 cm of water was applied to furrow and drip irrigated field, respectively. The amount of NO₃-N in the drainage water was calculated by using chloride tracer technique. During the entire growing season, the NO₃-N loadings below the root zone were 240 kg ha⁻¹ in furrow and 79 kg ha⁻¹ in the drip irrigated fields. A higher leaching fraction of 0.19 was obtained for the furrow irrigated field than 0.17 for drip irrigated field as higher amount of water was applied in the former. The irrigation efficiencies (1-LF) at the furrow and drip irrigated fields were 81% and 83%, respectively. The nitrogen use efficiencies were 23.4% in furrow and 31% in drip irrigated fields. The water application efficiencies were 72% and 73% in furrow and drip irrigated fields, respectively. Shifting from furrow irrigation to drip irrigation can reduce NO₃-N leaching and improve N use efficiency by reduced water inputs.

Variability of Physical and Chemical Properties of West Mesa Soils Irrigated by Industrial Effluent

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Knowledge of soil variability is useful for designing site specific soil management practices especially for those affected by anthropogenic activities. The objectives of this study were to determine the variability of soil physical and chemical properties due to the application of municipal and industrial wastewater in the West Mesa land application site and to group these soil properties into few principle components. Bulk and loose soil samples were collected from two wastewaters irrigated and one unirrigated fields and analyzed for various physical and chemical properties. Variability in soil properties was identified by coefficient of variation (CV) as the indicator and a property was ranked as least (CV < 0.15), moderate (0.15 < CV < 0.35) or most (CV > 0.35) variable using the criteria proposed by Wilding (1985). Nitrate (NO₃⁻), chloride (Cl⁻), sodium adsorption ratio (SAR), hydraulic conductivity (K_s), sodium (Na⁺), exchangeable sodium percentage (ESP) and electrical conductivity (EC) were observed most variable in the irrigated plots at 0-20 cm depth. Using Principle Component Analysis (PCA), 16 soil physical and chemical properties were grouped into four components (eigenvalue > 1) as: soil sodicity, water transport, soil texture and organic matter (OM) at 0-20 cm depth and soil sodicity, soil texture, water retention and OM at 20-40 cm depth. The soil sodicity factor was the most dominant with ESP the most dominant measured soil attributes at both 0-20 and 20-40 cm depths. Therefore, ESP should be monitored over time in the west mesa land application site. The mean SAR for study site was 19.17 in the irrigated plots, it is necessary to initiate management strategies on controlling soil sodicity in the West Mesa land application site.

Contaminant Bacteria in Soils; from Transport to Survival and the Indicator of the Indicator

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Fecal microbial contamination risk to water resources is determined by many factors. Perception of such risk to the same water resources is often dependent on the experimental approach and the scope of the interpretation of experimental results.

Particulate transport through heterogeneous porous media, such as soils, is clearly a function of the pore geometry and the stability of this geometry. Addition colloidal and particulate mixes, as organic wastes are, may alter the functional parameters of the intrinsic soil geometry and thus affect flow of water-associated contaminants. Transport of charged microbial particles, must be interpreted in the context of the charge interactions within the soil solution as they are affected by soil parameters and the charge properties imparted to the soil/water system by the addition of soluble and colloidal matter in organic wastes.

Persistence of microbial contamination risks to soils and adjacent water systems is dependent on the survival capability of the species of interest. Survival is obviously species dependent, but affected by variability in the relevant environmental parameters, and how these parameters are affected by management options. The capacity of soils to act as long-term sinks for such indicators may affect our potential to clearly discern immediate risks.

Given the large number of potential microbial contaminants, risk assessment exercises must by cause of expediency, focus on certain indicators. Most often the indicator is *Escherichia coli*, since it is generally considered to still be the best indicator of fecal contamination, out of a number of imperfect indicators. Nonetheless quantitative and qualitative relation between indicators and contaminants is often variable and dependent on the variable textural and hydrological parameters of soils and relevant management options. This presentation is reviewing the results of investigative work touching on these various aspects carried out by our group over several years."

Understanding Long-term Cropping Systems Effects on Water-stable Aggregates

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Water-stable aggregates (WSA) are an important indicator of soil quality that can be changed by soil and crop management practices. Understanding cropping systems that contribute most to increasing WSA can help identify strategies to promote WSA. This research investigated WSA among soils under different crops grown in four 36-yr old cropping systems in central Pennsylvania. The results indicated that perennial (4 yr corn- 4 yr alfalfa) and diverse (corn-oats/wheat-2 yr red clover + timothy hay) cropping systems resulted in 2-3 folds higher soil WSA as compared to annual (continuous corn or corn-soybean) systems. Within the cropping systems, perennial (alfalfa and red clover + timothy) and winter small grain crops (wheat /oats) had higher soil WSA than summer annual crops (corn and soybean). Seasonal fluctuation in WSA from spring-summer and summer-fall was also significantly less in soils under perennial and winter small grain crops than in summer annual crops.

Spatial Variability of Illinois Soil Nitrogen Test Results in New York Soils

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Plants take up nitrogen (N) from different sources including fertilizer N and N mineralized from organic sources such as plant aboveground residues and roots, manure and soil organic matter. There has always been a desire to have a soil test that accurately predicts the soil N supply for a specific field in a timely way. Because the plant-available form of N is nitrate, which in the humid Northeast climate is very mobile in the soil, a simple pre-season nitrate test cannot accurately predict N needs for the coming growing season. The Illinois Soil Nitrogen Test (ISNT) is a laboratory test that estimates the amount of readily mineralizable soil organic N. Field research in New York has shown the ISNT to be a better option for New York corn growers. For implementation of an ISNT-based N management system, it is important to understand the spatial and temporal variability of the ISNT and its effect on sampling distribution for accurate measurements of this pool of soil organic N. The objectives of the current study were to evaluate the accuracy of soil sampling protocols (number of samples per field) during the growing season and after harvest, with and without manure application in New York soils; and quantify implications of a change in spatial and temporal variability for ISNT results. The preliminary results showed that at a minimum 30 samples per 4-ha field (3 subsamples per acre) were needed to obtain a confidence interval within 10% of the population mean with >90% probability. The number of samples required was same for both summer and fall sampling and independent of manure application when applied in the fall.

Students

Floral Judging Team Competition, Fall 2009

For more information: Sabine Green (swhitley@nmsu.edu), 575.646.3662.

Wow! My student's commitment for this local event always amazes me. For an entire week they come in with drawings, ideas, and lists of flowers to order so they could create their works of art. This is a competition only for the amateurs, except for the Educational Division. In the Educational Division, a 10 ft space is provided and a team must put together ideas to demonstrate their talent and educate the public at the same time. For the rest of the categories, there were simple rules of the following:

- 26 inches wide and no height restriction except for the petite categories.
- Nothing that was botanical could be artificially colored.
- Petite size restrictions were 8 inches tall and wide.

The Youth Division is for High School Students, and we have 1 student from Las Cruces High that comes to get mentoring from the NMSU Floral Team. She will be here as a full team member in 2 years!

The following are the placings:

Educational display made by Monica Gomez, Mahonri Telles, Mecca Layson, and Ashleigh Paulson won 1st place. This design was a theme the student's picked, synonymous with the "Year of Sustainability for NMSU", and the titled it "Floral Industry Goes Green". It demonstrated the need to be creative and learn to reuse and recycle, even outside the floral industry.

- Dust Devil by Leslie Tiley won 2nd
- Ceremonial Dance by Micah Ward won 1st place as well as Sweepstakes and the Design Excellence, and Designer's Choice, all for the same design. Also in this category Lyndsey Tiley won 2nd and Sarah Selwyn won third.

- Carnival Time: Ashleigh Paulson won 1st place, Britney Lardner 2nd, and Samantha Valencia honorable mention.
- Blaze of Glory by Samantha Valencia won 2nd place.
- Beautiful Days by Sarah Ring won 1st and the best Novice award.
- Autumn Sunset by Sarah Selwyn won 2nd, and in the youth division, Mecca Layson won 2nd.
- Witches Brew by Ashleigh Paulson won 3rd, and in Youth Mecca won 1st.
- Harvest Moon by Sarah Ring won 3rd.



Additionally, the NMSU Floral Team went to the NM State Florist's Association Annual convention and competition. This competition was for professional florists in the industry, and we had 5 students brave enough to try their luck against seasoned designers. Lyndsey Tiley won 4th, and Micah Ward won 5th. They students were so professional, that the NMSFA requested they become the editing team for the monthly newsletter for the organization.

Left to Right: Mecca Layson Sabine Green
Ramon Quiroga Lyndsey Tiley

Bottom left to right: Micah Ward, Kenneth Sandoval, Monica Gomez