PLANTS & LANDSCAPES

Jeff Schalau is the Agriculture and Natural Resources Agent for the University of Arizona Cooperative Extension in Yavapai County. He has held this position since 1998. Jeff studied Forest Management (B.S. 1988) and Natural Resources (M.S. 1992) at Humboldt State University in Arcata, California. He provides science-based information to Yavapai County residents in the areas of horticulture, pest/disease diagnosis, small acreage education, noxious/invasive plants, range management, and forest health.

Oaks for Arizona
This presentation will describe the unique characteristics and suitability for use in landscapes of native and introduced Quercus species that occur in Arizona. Fifteen of the most commonly planted species will be described. Abiotic stressors and recommended cultural practices will be discussed. Known pest and disease issues will also be described including recently introduced pests such as the goldspotted oak borer that is currently in southern California.

Dr. Tony Knight received his veterinary degree (BVSc.) from the University of East Africa in 1968, a MS degree from Colorado State University in 1971, and board Certification in large animal internal medicine in 1980. He joined the faculty of Colorado State in 1973 and served as the Chair of the Department of Clinical Sciences from 1986-2003. He retired from his faculty position in July 2012 and now lives in Tucson, Arizona. His clinical and research interests include food animal medicine, plant toxicology, infectious diseases of large animals, and zoonotic diseases. As a master gardener with Pima County Cooperative Extension in Tucson, he continues to consult on plant poisoning. Dr. Knight has authored two books on plant toxicology titled, A Guide to Plant Poisoning of Animals in North America, and A Guide to Poisonous House and Garden Plants.

Poisonous Plants of Arizona
Plants contain a variety of toxic compounds that act as deterrents to herbivores and other animals. Other compounds found in plants that may be toxic to animals are normal components of plants essential for plant growth. Plant poisoning of livestock and horses is a common problem throughout North America causing significant economic losses. The incidence of human poisoning and especially children is comparatively rare. In this presentation, plants containing toxic compounds in Arizona and the Southwest will be discussed.

Matt Anderson is a native of Michigan. He has a Bachelor and Master’s Degree from Michigan State University in Crop and Soil Science and is a Certified Sports Field Manager. He has worked as a turf manager in various industry segments including minor league baseball, NCAA, and internationally at the 2004 Summer Olympics. He was hired as the Turf Manager at the U of A in December of 2001 and is responsible for all turf surfaces on campus including natural and synthetic. As Grounds Superintendent he is also responsible for all grounds department functions.

Advantages and Disadvantages of Artificial Turf
In this presentation a number of topics related to natural and artificial turf will be discussed: maintenance practices of synthetic turf, factors to consider when choosing synthetic versus natural turf, and challenges a synthetic surface can bring to a facility.
Glenn Wright
Dr. Wright has a Ph.D. in Horticulture from Texas A&M University and is an Associate Professor and Extension Specialist for Fruit Crops in the School of Plant Sciences. He joined the University of Arizona in August 1992 and is located at the Yuma Agriculture Center. He works with the commercial citrus, and date palm industries in Southwest Arizona and with other fruit-bearing crops, such as pomegranates and olives. His research interests encompass all horticultural and post-harvest aspects of these crops. Dr. Wright has developed and teaches a course titled Citrus and Date Production taught for the University of Arizona program in Yuma, and he teaches citrus, date and fruit tree culture to Master Gardeners and the general public across the state.

Not Your Ordinary Citrus
Citrus are more than just oranges and grapefruits! In this talk, Dr. Wright will discuss out-of-the-ordinary citrus that have distinctive traits. He will cover the origins of those citrus, the characteristics that make them unique, and the growing techniques that will help them survive in the desert. Finally, he will speak about how the trees and fruit can be used to make life more enjoyable.

Russ Buhrow has degrees in plant genetics and horticulture and has been exploring the desert for decades in search of interesting forms of local plant species for cultivation. He is best known in Tucson as the former Curator of Plants at Tohono Chul Park. While in that role, he grew many native plants for the landscape trade. His selections are favorites amongst collectors. For the last nine years he has partnered with Andy Smallhouse at Carlink Cactus in Redington, AZ growing saguaros for wholesale at the cold edge of their range. Most recently he has worked with Civano Nursery to develop superior native plants through selection and breeding.

Almost Everything You Need to Know About Growing Saguaro Cacti
Enter the iconic plant of the Desert Southwest, the saguaro cactus, Carnegiea gigantea. It is hard to imagine a western movie or travel postcard without one featured prominently. These endemic giants have long been a popular and easy-to-care-for landscape choice throughout the region. Growing saguaros commercially in Redington, Arizona has presented many challenges. Depending on annual rainfall, cold and hot extreme temperatures, new issues arise. What temperature can they withstand without getting damaged? How much water, if any, should they get and when? Just how long is their growing season? Where is the best place to plant a saguaro? Learn this and much more from the expert, who has seen everything from worm infestations, disease, odd coloration, and packrat feasts on this clan of 15,000+ field plants and over 100,000 greenhouse plants.

Irene Ogata is the Urban Landscape Manager in the City of Tucson, currently within the Planning and Development Services Department. She is involved in city wide landscape issues and policies involving public facilities and public health and wellness. Many policies touch on improving community livability as it impacts human and environmental health; including policies and programs mitigating urban heat island, addressing water resources in relation to storm water harvesting/green infrastructure/low impact development, nexus between water and energy and issues of climate change and social/environmental justice. Irene works inter-departmentally, mainly with Transportation, Water, Parks, Environmental Services and the City Manager’s office; along with non-profit organizations that work towards healthy community-building.

Changing Trends in Landscape Design: How Designers Choose Their Plant Palette
This session will touch on historical trends in urban landscapes, the development of the Low Water Use / Drought Tolerant Plant list. How the list has been updated through the years based on better
understanding of invasive qualities of plants and addition of new varieties. Climate change is changing the ranges of plant zones, and this affects design and selection of plants in the urban areas.

**PLANT HEALTH**

**Dr. Michael Wierda** is an Assistant in Extension focused on Pesticide Safety Education (PSE) based out of the Arizona Pest Management Center. Dr. Wierda chairs and serves on multiple committees related to Pesticide Safety Education Program Improvement and Modernization Initiative. He also works closely with Integrated Pest Management (IPM) to make sure PSE is part of IPM trainings and IPM is part of PSE trainings. Dr. Wierda earned his Ph.D. in Environmental Toxicology from Clemson University in Clemson, South Carolina. Prior to joining the Arizona Pest Management Center he was working on testing the suitability of microsatellite markers in establishing baseline genetic data of Arizona Bald Eagles and was teaching Introductory Biology.

**Insecticides for Landscapes**

This presentation will discuss insecticides used to control important landscape pests. We will look at the mode of action of major pesticide groups, application methods (soil drench versus foliar spray), and applicator and environmental health concerns.

**Dr. Ursula Schuch** is a University of Arizona Extension Specialist and Professor in the School of Plant Sciences with has statewide responsibility in environmental horticulture. Dr. Schuch received a Ph.D. in Horticulture and a MS in Forest Science from Oregon State University. She presents seminars and workshops for professionals in the green industry and conducts research to address relevant issues in horticulture production practices and landscape management. Her research interests include irrigation requirements of trees and shrubs, abiotic stress affecting landscape and other plants, and minimizing inputs in nursery production and landscape management. Current research projects include cultivar trials of pomegranates, identifying the causal agent of palo verde broom, and production of specialty crops in hoop houses.

**Palo Verde Broom Disease**

Witches broom on palo verde is a disease that forms dense clusters of stunted branches in the canopy and often leads to breaking of branches. The problem has increased greatly in recent years and is now affecting the majority of blue palo verde trees. The causal agent of the disease is not known and is currently under investigation at the University of Arizona. This presentation will explain the problem of witches broom in palo verde, insects found in broom and non-symptomatic branches, and our approaches to determine the causal agent of broom.

**Dr. Bill McCloskey** is a University of Arizona Cooperative Extension Specialist affiliated with the School of Plant Sciences in the College of Agriculture and Life Sciences. Dr. McCloskey obtained MS and Ph.D. degrees in Plant Physiology (Weed Science) from the University of California, Davis and conducted post-Doctoral research on triazine herbicide resistance in common groundsel at the University of California, Riverside prior to his appointment at the University of Arizona. His Extension programs and supporting research over more than two decades have focused on managing weeds in Arizona's irrigated crops economically using sound ecological principles and a variety tactics. These have included using precision guidance technology (GPS), optical and electronic sensor technology, computerized application technology and mechanical cultivation in addition to traditional chemical tools. Dr. McCloskey has also developed management tactics for the weeds associated with new crops such as guayule and
lesquerella in irrigated desert crop production systems and is working on the management of invasive species such as buffelgrass, Russian knapweed and saltcedar in rangeland and natural landscapes. Bill presents numerous lectures and workshops on weed management to audiences involved in Arizona crop production and weed management in urban, range and wild landscapes in support of Cooperative Extension educational programs.

**Glyphosate Use in Urban Landscapes: How Safe?**

The International Agency for Research on Cancer (IARC), the cancer-research arm of the World Health Organization, classified glyphosate (the active ingredient in Roundup branded products) as “probably carcinogenic to humans” (category 2A) in March 2015. This decision raised concerns among users about the safety of continued glyphosate use. This decision was controversial and was not supported in subsequent decisions by various regulatory agencies. The U.S. EPA also reaffirmed its’ May 2013 statement that “EPA has concluded that glyphosate does not pose a cancer risk to humans”. All pesticide use entails some risk and requires making risk versus benefit decisions. This presentation will discuss the safety of glyphosate to users as determined in long-term human and animal studies, how glyphosate toxicology is measured and how glyphosate food tolerances were established by the U.S. EPA. The worker protection language on glyphosate herbicide labels will also be reviewed. The presentation will conclude with a brief synopsis of how glyphosate works in plants and the possible ways that glyphosate can be used for weed control in urban landscapes.

**Peter Warren** is the Urban Horticulture Agent for the Pima County Cooperative Extension at the University of Arizona. He works with homeowners, landscape professionals, and urban farmers to promote integrated pest management and other best management practices for horticulture in the Sonoran Desert. His expertise is in entomology and environmental horticulture. He began his Extension career with Virginia Tech in 1998 as an Area IPM Agent, later switching to Horticulture and Natural Resources based in Charlottesville, VA. In 2011, he moved to Tucson, AZ to assume the role of Urban Horticulture Agent for Pima County.

**Common Landscape Pests of Woody Plants**

This presentation will cover many of the insect pests we see on southern Arizona trees and shrubs. Management options as well as lifecycle information will be presented in a way to encourage an integrated approach to dealing with our common pests.

**Dr. Barry Pryor** is a Professor of Plant Pathology and Microbiology in the School of Plant Sciences. His research spans both applied and basic mycology and includes studies on plant diseases of both agricultural and horticultural importance, the impact of fungi on respiratory diseases in humans, toxic fungal metabolites, fungal evolution, and the cultivation of gourmet and medicinal mushrooms. Dr. Pryor also teaches a number of classes focused on mycology and plant pathology including Introductory Plant Pathology, Arizona Cropping Systems, and a general education class entitled Mushrooms, Molds, and Man.

**Plant Parasitic Plants**

This presentation will include an overview of the diversity of plants that parasitize other plants and where they are encountered in both natural and human-modified environments. Several important species common to the Southwest will be discussed in detail including mistletoe, dodder, and broomrape. The impact of these plants in both agricultural and horticultural systems will be highlighted and contemporary methods of cultural and chemical control will be described.
Juan Barba was born and raised in Tucson and earned a degree in Landscape Horticulture from the University of Arizona. Juan soon opened his own tree company whose direction became arboricultural consulting. He is a specialist in low desert trees and saguaros, plant appraisal, cultural, environmental as well as disease and insect consulting, and along with legal work, Juan Barba is adept at dealing with tree and community issues. A long time Certified Arborist, Juan is a former Western Chapter ISA President and authors a column in Southwest Trees & Turf.

Problems with Palo Verde
There are many problems affecting palo verde trees, the state trees of Arizona. Several of these issues will be discussed to improve growth and support longer living trees. Abiotic problems that will be covered include uncontrolled growth and poor structure in hybrid palo verde and sunburn. Biotic problems that will be covered include symptoms, diagnostics, and treatments if available for root borer and scale in Mexican palo verde and hybrids of Mexican palo verde, trunk borers, other beetles that cause damage, and trials to control mites on palo verde.

PLANT AND LANDSCAPES

Dr. Tanya Quist received a Ph.D. in plant physiology and molecular genetics from Purdue University’s Department of Horticulture and Landscape Architecture with a focus on understanding how plants respond to stress. Presently, as Associate Professor of Practice in the UA School of Plant Sciences and Director of the UA Campus Arboretum, her interests relate to arid adapted woody ornamental landscape plants with a focus on sustainable horticultural practices for urban forest ecosystems.

Taming the Shrubbery – Pruning Small Woody Plants
This presentation will review the principles of pruning for shrubs and small trees. Participants will explore valid reasons for pruning that protect plant health, when and how much to prune, and pruning to train young shrubs and small trees, rejuvenate overgrown plants, and rehabilitate over-pruned shrubs. A wide variety of common and exotic plant species will be used as examples to prepare practitioners with the knowledge to adapt to any situation in the field.

Carianne Campbell is the Restoration Director at Sky Island Alliance, a regional conservation organization that works bi-nationally to protect and restore the biological diversity of the sky island region of southern Arizona and northern Sonora, Mexico. She has nearly 20 years of experience with the native vegetation of the region, and has long been an advocate for the use of native plants to create beautiful urban landscapes. She currently serves as the Vice President of the Southwest Chapter of the Society for Ecological Restoration, and in the past has served as President of the Tucson Chapter of the Arizona Native Plant Society and as the Wildlife Habitat Representative on the City of Tucson Landscape Advisory Committee.

Undesirable Plants in our Landscapes
This presentation will highlight some of the most undesirable plants in our landscapes – from the perspective of wild natural areas and wildlife species – with landscape maintenance considerations added as well. Many plants that have become popular ornamentals actually cause a great deal of ecological and economic harm as they spread beyond our gardens and into wild places. In the most extreme cases, these species can even be fire hazards, threatening human health and property. With over 2500 species of native plants in Pima County alone, southern Arizona provides a rich diversity of native species – many of which flourish in landscape settings and provide the added value of attracting
hummingbirds, butterflies, and other desirable pollinators. Learn about some truly problematic species to avoid.

Jeffrey Gilbert has over 38 years of experience with landscape management. Worked in city parks performing recreational sports field maintenance and irrigation management. Has worked as a landscape and irrigation contractor. Graduated from Colorado State University with a Bachelor of Science in landscape horticulture in 1988 and from the University of Arizona with a Master of Science in Soil, Water and Environmental Science in 2000. For the past 27 years has worked at the University of Arizona doing research on turfgrass and irrigation management. Also, works with the city of Tucson water department as an irrigation consultant for commercial properties. Primary interests are in landscape water management and irrigation system optimization.

Drip Irrigation App
The ‘Drip Irrigation Scheduler’ introduces a new website available from the University of Arizona – School of Plant Sciences. This website offers a science-based approach to scheduling drip irrigation for tree, shrubs, cactus, accent plants and groundcover used in landscaping. User input of emitter flow rates, plant type and zip code are all that is required. Runtimes are ‘set’ and do not change throughout the year. Currently, schedules can be developed for landscape in Arizona and California.

Dr. Jim Walworth is a Professor of Soil Science, Extension Specialist, and Associate Department Head in the Department of Soil Water, and Environmental Science at the University of Arizona, where he has been employed since 1998. He received BS and MS degrees in Soil Science from the University of Wisconsin and a PhD in Agronomy from the University of Georgia, and has more than thirty years of experience working with crops and soils in the Midwestern, northeastern, and southeastern US, as well as the deserts of the southwestern US. He also has extensive experience with soils in the far North (Alaska) and far South (sub-Antarctic Australia).

Dr. Walworth specializes in the behavior and management of nutrients, salts, and water in soil. He has worked with pecans, vegetables, field crops, and turfgrass in the desert southwest for 18 years, conducting research on iron, zinc, nitrogen, and manganese nutrition; water and salinity management; and the use of composts and animal manures.

Managing Alkaline Soils
Most desert regions have very high pH levels and contain undissolved calcium carbonate. These chemical properties have a strong influence on many plant nutrients. Micronutrients such as iron, zinc, and manganese are among the most noticeably affected. We will explore the mechanisms by which soil pH affects nutrient availability, look at and learn to identify nutrient deficiency symptoms, and learn about the ways plants respond to nutrient deficiencies. We’ll also discuss methods of dealing with high pH soils and look at ways of managing nutrients in plant-soil systems in these soils.

Channeling Your Inner Botanist – Plant ID for Beginners – presented by Dr. Tanya Quist
Participants will learn terminology and strategies for identifying plants based on leaf shape, buds, branch morphology, bark, and other criteria. Participants will review characteristics of species commonly used in Arizona landscapes and compare/contrast features of similar plants to aid in distinguishing similar plants. Participants will be actively engaged in plant identification exercises throughout the session.