Sustainable Focus

By Lynn Groom

A reservoir under California’s Agricultural Academy School campus holds up to two million gallons of water during the EPIC system’s (above, inset photo). The use of Crystal Green, a fertilizer derived from wastewater, allowed a farm to harvest soil in eight months versus 13-14 months. The EPIC Irrigation System, which involves installing the Environmental Protective Integration Closed (EPIC) system, has been designed to use between 50 percent and 50 percent less water than conventional surface or drift irrigation systems. It has been gaining interest as concerns over water consumption mount. In fact, about 130 sites around the U.S. have installed the EPIC system, including sports fields, urban landscapes and green roof installations, says Jonas Spalas, director of innovations, EPIC Green Solutions, which is the worldwide rights holder. Last April, EPIC Green Solutions finalized an agreement whereby Firestone Specialty Products, a division of Firestone Building Products Company, will serve as the exclusive North American distributor of the EPIC product line. The EPIC system is used in combination with Firestone’s ethylene propylene diene monomer (EPDM) synthetic rubber (which acts as a rubber liner). The EPIC system works through gravity-driven, centrifugal physics of water sand. Continued from page 23

• Blocked sections lines in pumps
• Hydrated lime rinse and aproned, reducing water application of water
• Old timeliness in need of replacing, with no air relief valves

• Yarn nozzle types and sizes on the one spray line and/or travelling irrigator
• Inadequate pipelines that need replacing and poorly matched pumping units for the dirty requiredness, and

• Few nutrient retention ponds to capture and reuse water

The irrigation assessment strengthens the case for investing in infrastructure. Using this information, irrigators with river water license entitlements were encouraged to submit proposals to requests for grants or some of all of the improvements already identified. This leads to a management assessment. In exchange for the grant, irrigators must transfer a portion of the water savings from their license entitlement and receive AUD $3,000 (GST included), pro rata, of the water transferred. To the author’s knowledge, this project approach is unique worldwide.

As of June 30, 2011, 19 irrigator project proposals have been approved to support over AUD $6,130,200 in exchange for 494 megaliters of water transferred from license entitlements. In addition to the grants program, more than 50 producers have attended WSSP information meetings and 21 irrigation proposals were discussed by producers in the latter part of 2011. This is one of the main R&D priorities identified in the Australian Turf Industry Strategic Plan.

Satellite and SMS Scheduling

The satellite and SMS Scheduling technology provides advice to irrigators in the Hawkesbury Nepean catchment by means of SMS through their cell phone or personal computer. The technology combines satellite irrigation with on-ground weather station data. It collects real-time rainfall and crop water needs information to determine the crop water requirement (Ho-Dang pers. comm., 2011). The provision is offered as a SMS on the client’s cell phone and more details on water balance, weather and seasonal record are available through the Internet through the IrrSat SMS Web site. Producers also can use this Web site to compare their performance with other irrigators. The SMS is sent daily. The information is tailored to each individual farm and advises the pump run time required to deliver the necessary irrigation. The farmer then decides when to irrigate and how much to apply with guidance from the SMS message (Machar, 2010).

Nutrient Smart Farms

The Nutrient Smart Farms (NSF) project aims to reduce nitrogen (N) and phosphorus (P) entering the Hawkesbury Nepean river with matching dollar for dollar conservation goals and entitlement sharing. The NSF project was focused on reducing nutrient runoff to improve water quality and preserve aquatic habitat. The NSF project has seen a significant improvement in nutrient reduction. Therefore it is important that mediation application rates do not exceed the soils infiltration rate. Where possible, it is best that nutrient-rich runoff water be captured in a retention pond and then reused.

Ponds increase irrigation efficiency by using properly designed. As an example, with rainfall of 800 mm and evaporation of 1500 mm per year, a four-megaliters capacity pond could capture all irrigation runoff and 86 percent of the total runoff from 20 hectares (50 acres) in an average year. The pond may capture 85 percent of the P and 75 percent of the N in runoff and occupy 2000 m² with a maximum depth of four meters (Sew, 2010).

Conclusion

The Australian turf industry has shown strong willingness to improve water management practices despite recent drought and flooding events, and disasters and challenges presented by climate variability. If the industry is to prosper, then turfgrass must be marketed as a sustainable environmental champion and the industry seen as part of the solution. This can only be achieved by working together at a national, state and local level. The WSSP & NSF Projects have achieved significant water and nutrient savings through new techniques for targeting the environment, but also accelerated the adoption of best irrigation management practices that otherwise might not have been undertaken without project funding.

Australian producers face a future with less water due to projections of more prolonged drought and warmer temperatures. With this in mind, producers who have adapted more efficient systems will be in a better position to manage these challenges into the future. The industry must be prepared for the next drought, and develop appropriate tools and systems to market products more effectively. The commitment of the national bodies, state associations and Australian state governments have shown that positive outcomes can be achieved when all stakeholders work together. It is hoped that funding programs similar to the SmartFarms project will be available to other turf producers in the future.

For more information, contact Matthew Plunkett, NSW DPI Locked Bag 6, Richmond NSW 2753, AUSTRALIA; matthew.plunkett@industry.nsw.gov.au

References


Matt Plunkett