Full Coverage Nozzle Company Delivers Impressive Pattern

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A few years ago, Kevin Ross, CGCS, of the Country Club of the Rockies walked by our booth at the GCSAA show and handed us one of David Malcolm's business cards. "Check this out," Kevin said. "He makes a great product." That card has been in the "to do" pile ever since, but when "Minnesota Jack" MacKenzie, CGCS, of North Oaks Golf Club waxed poetic in the TurfNet.com Forum recently about his new nozzles from Full Coverage Irrigation, we thought it time to get out of the gate and check it out."... a one-piece nozzle was frequently the limiting factor in sprinkler performance."

David Malcolm is president of Full Coverage Irrigation, Inc. (Coarsegold, Calif.), specialty manufacturer of replacement irrigation nozzles. His father, Richard, was a design engineer for most of the major irrigation manufacturers over his 30-year career, and became an expert in overcoming weaknesses in sprinkler patterns caused by wind and low pressure. He concluded that a one-piece nozzle was frequently the limiting factor in sprinkler performance. David founded FCI to bring the expertise gleaned from his father to the turf sprinkler market.

When calling the FCI offices to speak to David, we were surprised to hear the greeting, "Hello, FCI, this is Mike Huck." Ta da! The light going off in our heads reminded us that Mike Huck left his USGA Green Section agronomist position a couple years ago to help David Malcolm grow FCI beyond its typically West Coast market. So, we spoke to Mike...

"David helped me with some sprinkler distribution problems when I was a superintendent prior to my USGA position," he explained, "so I knew the products worked. It seemed like a great challenge to help spread the word."

A Variety of Replacement Nozzles from FCI

FCI manufactures replacement nozzles for Toro, Rain Bird and Buckner heads. "Golf courses have much more exacting distribution requirements than agricultural or commercial applications," Huck explained. "You have to have uniformity of color and density without dry or soggy areas. Extending run times to compensate for uneven nozzle patterns is expensive and inefficient in terms of both water use and pumping costs." Recent droughts and spikes in power costs have exacerbated the problem, bringing more efficient water use to the forefront. The factors that lead to poor coverage and operating inefficiency are not necessarily the fault of the manufacturer, the system designer, or the installation contractor. Fluctuations in water pressure (or an intentional reduction to save pumping costs), changing wind conditions, heads that are pushed below grade or knocked off perpendicular, and the replacement of heads with incompatible models create uniformity problems over time.

"Nozzle development is sort of a dark science..." So how do they do it? How can a little guy do it better than the big boys? "Nozzle development is sort of a dark science," explained Huck. "Either you have it or you don't. With his specialty focus, David has developed a methodical way of designing high performance nozzles that solve a variety of problems, taking into account the design of the sprinkler, flow characteristics and internal turbulence. They work, and superintendents immediately notice the improved coverage."

"Our design is completely unique," said Huck. "David found that by inserting a stainless steel orifice plate with small notches punched out of it, we can precisely strip the stream of water apart without disrupting the distance it

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Nozzles –

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throws. The amount of water stripped away is determined by the width and length of the notches. This provides a more uniform application across the throw of the sprinkler, particularly at lower pressures where straight bore nozzles tend to produce a steady stream with no break-up or atomization, resulting in the donut effect."

FCI nozzle bodies are machined from brass to close tolerances, while the orifice plates are manufactured from high-grade stainless steel. Stream straightening veins and flow control devices (when required) are injection molded and the only plastic found in FCI nozzles, which are individually assembled by hand to assure proper alignment of all components.

What are the red flags that might indicate a need for a nozzle change-out? "Any time you have repetitive patterns of inconsistency - wet spots, dry spots, or donuts - across the property, you would benefit from testing our nozzles," Huck said. He recommends changing out at least a full block, if not an entire hole, rather than intermingling with existing nozzles. "Interfacing with factory nozzles on a random basis might create new problems that you didn't have before," Huck advised.And how does one go about it? "We just need to know what sprinkler model, the spacing, square or triangular pattern, and whether there are any pressure problems," Huck said.

What does it cost? "About $10 per set, purchased in quantity," said Huck. "With a typical 18-hole course having somewhere between 1,000 and 1,100 full circle heads, that's an investment of $10,000 - $12,000 to retrofit the entire golf course. And it should take a trained technician only two or three minutes to complete the change-out for each nozzle."

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The only special installation requirement is to orient the nozzles properly, due to the unique design of the orifice plates. "Proper orientation is critical, so we train people how to do it and explain why," concluded Huck.

(Editor's Note: For more information about Full Coverage Irrigation, Inc. call 877-658-3072 or 949-388-5097 or go on-line at www.fcinozzles.com. Full Coverage Irrigation, Inc. is located in Coarsegold, Calif.)