

Clear the Air

Users will benefit from two-cycle engine equipment with reduced emissions – but at what cost?

By Larry Aylward, Managing Editor

Manufacturers must deal with it, but don't think the EPA's and the California Air Resources Board's new emission standards for two-cycle engines won't have an impact on users.

Because of the standards, two-cycle engine equipment such as weed trimmers, chain saws and leaf blowers must become more environmentally friendly. As a result, the products could also become more expensive and heavy.

EPA released its final ruling on March 9. It says: "New emission standards are now in place for small hand-held engines at or below 25 horsepower that are used in lawn and garden equipment. When the new standards are fully in place in 2007, the ground-level ozone pollution caused by these engines will be cut by 70 percent or 350,000 tons each year."

"Clearly, workers will benefit from significantly lower exposure to harmful exhaust emissions," says Bob

Larson, deputy director of EPA's assessment and standards division in Ann Arbor, Mich.

EPA requires production of cleaner equipment beginning in 2002.

The California Air Resources Board's Tier II emission limits, in effect this year, are intended to cut total emission of hydrocarbons and nitrogen oxides by 74 percent in hand-held equipment by 2010. CARB's Tier I standards, implemented in 1995, cut emissions from this equipment by up to 70 percent.

Larson says EPA doesn't expect a reduction in product availability or perfor-



mance from manufacturers. However, the new standards present manufacturers with several engineering challenges, whose end results could affect superintendents.

Manufacturers' goals include retaining the power and

simplicity in two-cycle engine equipment while abiding by the new regulations — but they'll have to go back to the drawing board to do so.

Manufacturers have spent many years trying to lower the weight of two-cycle engine products without decreasing performance. But the new emission reduction standards may force some manufacturers to add catalytic converters to products, hence adding weight.

"If you add another pound to a product that weighs 8 pounds, it makes a substantial weight difference," says Mark Michaels, senior product manager for Charlotte, N.C.-based Husqvarna

Increased weight could impact safety. "The entire balance changes when you add even one-half pound to a power head on a trimmer," Michaels notes.

Husqvarna, however, has a new engine technology — E-Tech — that adheres to the new regulations. Michaels says new E-Tech equipment will have less emissions but not at the loss of performance.

"We increased the efficiency of the engine by increasing crankcase pressure, which made fuel burn more efficiently," he explains. "Once we made it more efficient, we could add a low-weight catalytic converter to it."

Other manufacturers will soon be introducing emission-reduced equipment. Moline, Ill.-based John Deere says its new

LE small engine technology will reduce emissions in its hand-held products by up to 70 percent. "These LE machines run more efficiently, produce about the same amount of heat and have proven equally safe for the operator," says John Jenkins, president of Deere's consumer and commercial equipment division.

Norcross, Ga.-based RedMax/Komatsu Zenoah America says its new Strato-Charged Air Head complies with the new regulations without using a catalytic muffler. Last July, the company released seven new products powered by the Strato-Charged low-emission two-cycle engine. Don Kyle, vice president of marketing, says the Strato-Charged engine reduces emissions by 70 percent and increases fuel efficiency by nearly 35 percent.

Michaels says Husqvarna has received no feedback from superintendents regarding the new standards. However, he says superintendents are counting on manufacturers to comply with the standards and introduce equipment.

Larson says some manufacturers are bound to charge more for new equipment. "Cleaner emissions don't come without some cost," he says. ■

A Breath of Fresh Air

There's good news for those who like to breathe. EPA's latest air-quality report reveals that air quality nationwide continues to improve, although smog (ground-level ozone) is rising in certain regions, including many rural areas.

A number of improvements were made from 1989 to 1998, including these reductions:

- Lead concentrations by 56 percent.
- Carbon monoxide by 39 percent.
- Sulfur dioxide by 39 percent.
- Coarse particulate matter (dirt, dust, soot) by 25 percent.
- Nitrogen dioxide by 14 percent.
- Smog by 4 percent.



Shades Of Green

OPINION

The GCSAA recently released the results of its 2000 Golf Leadership Survey taken in February at the conference and show. Some of the answers to the non-technical questions were interesting, to say the least.

I laughed — a snicker, not a knee-slapping belly laugh — when I read the results of No. 29. The question reads: If you could play one round of golf in North America, where would it be?

The top five results are: (1) Augusta National, 36 percent; (2) Pebble Beach, 23 percent; (3) Cypress Point, 18 percent; (4) Pine Valley, 13 percent; (5) Pinehurst, 11 percent.

I snickered because irony abounds in that answer, given that superintendents battle the “Augusta National Syndrome” often at their own courses. How many gray hairs and ulcers have been experienced by superintendents who have endured the apples and oranges comparisons from their members about Augusta National conditions or television golf in general?

The sheer magnitude of the history at the Masters is enough of a draw to make superintendents want to play Augusta. I only know my game couldn't handle greens rolling 13 on level ground. As far as the conditioning syndrome, you can take your green chairman to a practice round and show him quickly why your course doesn't look like Augusta.

I've been to the Masters three times to check out golf's Shangri-la. Yes, it's totally awesome. No, I didn't get to close my home course for five months out of the year, install heating and cooling systems under the greens, place grow lights on greens at night, or increase my budget and crew size by 200 percent.

Another question that was mildly thought-provoking was the one asking which U. S. president of the last century would superintendents like to play a round of golf with. The top five answers are: (1) John F. Kennedy, 16 percent; (2) Dwight Eisenhower, 13 percent; (3) Ronald Reagan, 12 percent; (4) Theodore Roosevelt, 11 per-

Augusta: No. 1 With a Snicker

BY JOEL JACKSON



THE SHEER
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TO PLAY AUGUSTA

cent; (5) a tie between George Bush and Bill Clinton, 8 percent.

Although there isn't much difference statistically between the rankings, I would juggle the lineup. Since I'm a war baby, I like Ike. My dream foursome would be Eisenhower, Bob Hope and Arnie. Yeah, I know — we're all Republicans.

As a college student in the 1960s, I too was energized by Kennedy's Camelot days and numbed by his assassination. A round with JFK would've been interesting. Maybe I could even have met Marilyn Monroe.

After watching several Bush interviews on A&E's *Biography*, *Charlie Rose* and *60 Minutes*, he moves up to third choice. Bush has shown more soul since he's been out of office. Also, a golf pro friend of mine sent Bush a Pole Kat putter, which he used.

At the risk of having Teddy Roosevelt shoot the wildlife on the golf course or turn the course into a national park, he moves into fourth place. Playing golf with this larger-than-life politician would just be “bully.”

I can't remember ever seeing Reagan with a golf club in his hands, so I don't know how he made the list. It must have been the trickle-down vote from the conservatives. Nevertheless, the Gipper moves into fifth place.

That leaves out Clinton. Sorry, they said to rank the top five. I loved it when Clinton played “Blueberry Hill” on the saxophone — but I hated it when he lied to us.

The real reason he doesn't make my foursome is that in golf, you're supposed to call the penalty on yourself.

Joel Jackson, CGCS, retired from Disney's golf division in 1997 and is director of communications for the Florida GCSA.

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BY LARRY AYLWARD, Managing Editor

*Well, the wind is blowin' harder now,
Fifty knots or thereabouts,
There's white caps on the ocean,
And I'm watching for water spouts.*

— Jimmy Buffett, "Trying to Reason With Hurricane Season"

Copin' with 'Canes

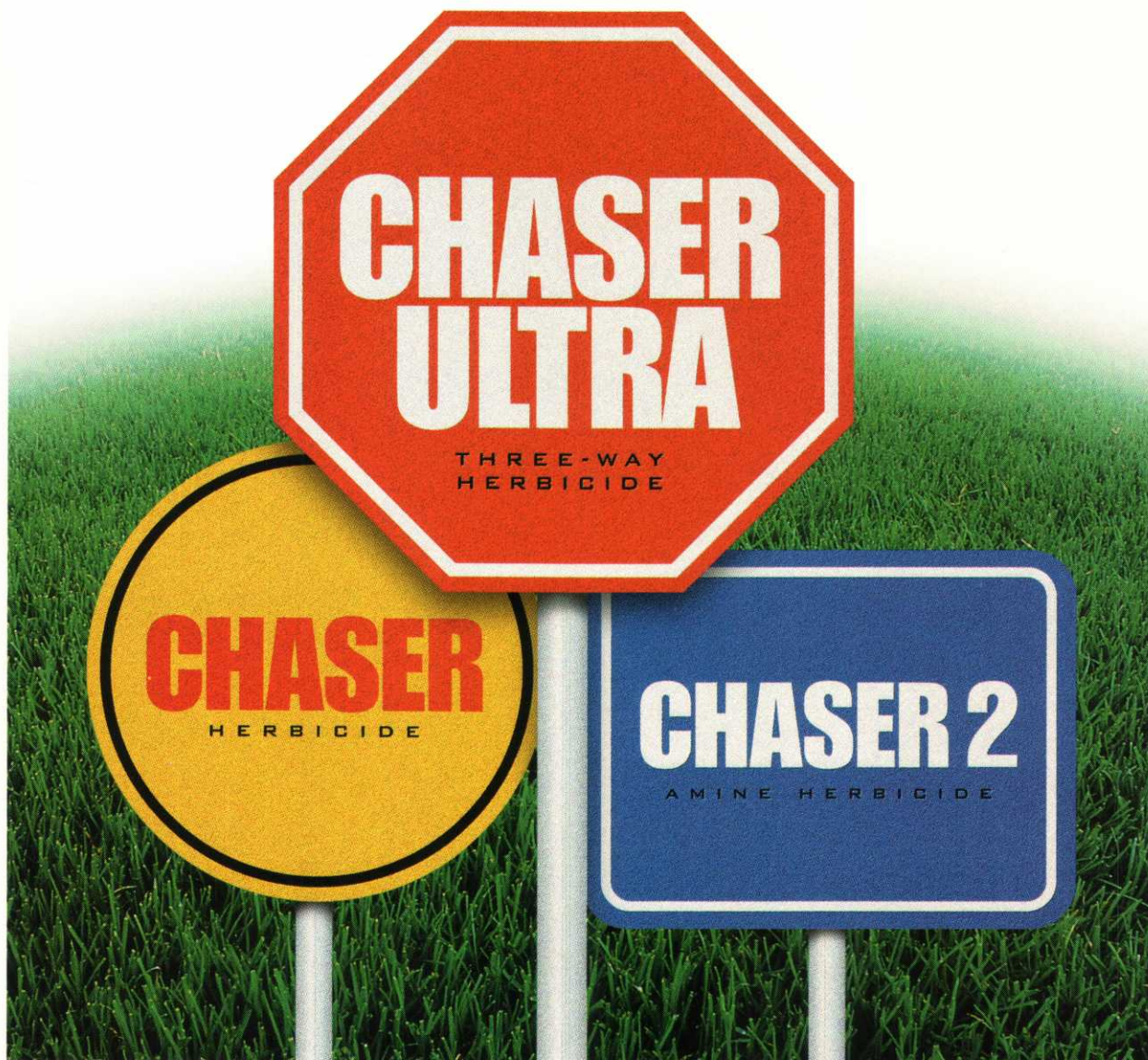
Mike Claffey, superintendent of Cape Fear CC on the North Carolina coast, empathizes with the lyrics from this classic Jimmy Buffett tune — he has weathered six hurricanes in the past four years. Yes, Claffey is trying to reason with hurricane season, which lasts from June through November, but he'll be the first to tell you that he's spending too much time riding out these perilous storms.

"We've been getting whacked," Claffey says, reciting the names and order of the hurricanes — Bertha, Fran, Bonnie, Dennis, Floyd and Irene — like they were his troublesome children.

It's a good bet that Cape Fear CC, located near Wilmington, could get creamed again this year. U.S. weather specialists predict an above-average storm season and warn of possible longer-lasting hurricanes.

Cape Fear juts out in the Atlantic Ocean from a protruding tip of land in southern North Carolina. In recent years, when hurri-

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canes are brewing in the southern Atlantic, it always seems as if Cape Fear is in the path of the swirling storms — just waiting to be developed. “Whenever they say the word ‘hurricane’ on the Weather Channel, we start getting nervous,” Claffey says.

So does Mike Fabrizio, CGCS at the Daniel Island Co. in Charleston, S.C., who felt the brunt of Hurricane Hugo in 1989 while superintendent at Wild Dunes Links, located on the northeast tip of Isle of Palms near Charleston. Wild Dunes didn’t just suffer flooding and downed trees — it lost nearly two golf holes down to the irrigation lines.

“We documented the most damage that any golf course ever received from a hurricane,” Fabrizio says, without pride, of the desolation.

But Claffey, Fabrizio and their crews have learned not to push the panic button when their golf courses are under a hurricane’s siege. They realize they can’t stop Mother Nature’s wrath, but they can implement plans to contain it.

Claffey, in his 14th year at Cape Fear CC, says he keeps a checklist of things to do if there’s

There’s Calm in Your Eye, But ...

The 74 to 160 mph winds of a hurricane can extend inland for hundreds of miles. Hurricanes can also spawn tornadoes and floods. But more dangerous than the high winds is the storm surge — a dome of ocean water that can be 20 feet at its peak and 50 miles to 100 miles wide. Nine out of 10 hurricane fatalities are attributed to the storm surge.

Ten tropical cyclones usually develop in the North Atlantic each year. Six may strengthen to hurricane status, of which two are likely to strike the U.S. coasts.

Source: Federal Emergency Management Agency

a hurricane. The list comprises items that need to be removed from the course and stored safely, such as flag pins, benches, tee markers, signs and trash cans. “We’ll take in anything that can become a projectile,” he says.

Then there are preparations to make in case there’s hurricane damage to the course. Once
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**One of the ways
to reason with
hurricane season
is to make sure
your golf course
is insured.**

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Claffey hears a hurricane warning, he phones local equipment rental dealers to reserve a dump truck, backhoe, front-end loader and wood chipper, among other clean-up equipment.

"We want to reserve the equipment prior to the storm so we know it's available the day after the storm," Claffey explains.

Fabrizio takes similar precautions, but he warns there's not much a superintendent can do to protect a golf course if a ferocious hurricane like Hugo makes landfall.

"We did all the things we thought we could do to prepare (for Hugo)," Fabrizio says. "But when you get something catastrophic that puts 6 feet to 8 feet of water over the entire island with wave action, it's going to wash away a golf hole."

A hurricane can also inundate your irrigation pump station and your maintenance facility with salt water. At Wild Dunes, the maintenance facility was nearly destroyed and there was about \$400,000 in equipment damage, Fabrizio says. The golf course was closed for almost a year.

One of the ways to reason with hurricane

season is to make sure your golf course is insured.

"The biggest thing to do to prepare for a hurricane is to make sure you're adequately insured," Fabrizio says, noting that wind storm and flooding policies are vital.

If your course is a resort like Wild Dunes and the operation relies on outside green fees and guest fees, not members' dues, business interruption insurance may also be paramount to supplement for lost revenue. "That's often overlooked," Fabrizio adds.

When hurricanes Bertha and Fran hit in 1996, Cape Fear CC had extensive insurance for destruction throughout the course. But because of the frequent number of storms and subsequent damage, insurance costs soared in the Cape Fear area, Claffey says.

"All we have now is greens coverage," he adds, noting that the course can't afford to insure its entire course.

Hurricanes Dennis, Floyd and Irene ravaged North Carolina last summer, and Cape Fear CC was not spared. Despite not having full insurance, Claffey says repair and clean-up costs

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Fighting Fire With Irrigation System

The fierce wildfires spread swiftly across parched central Florida in 1998, toasting thousands of acres of land and sending billows of dense smoke up into the blue sky. Mike Fabrizio, former superintendent at Matanzas Woods GC in Palm Coast, Fla., recalls preparing his course for an approaching blaze.

The wildfire that ambushed Matanzas Woods GC was moving about 10 miles an hour with the help of a southwest wind. Fabrizio and his crew collected course furnishings and stored them before evacuating an hour before the fire hit. Also before leaving, Fabrizio turned on the irrigation system, which turned out to be an insightful move.

"We let the heads run along where we thought the fire was going to hit," notes Fabrizio, currently the CGCS at the Daniel Island Co. in Charleston, S.C. "(The system) completed a good portion of its cycle in that hour."

A big chunk of the forest surrounding the 18-hole course was destroyed by the flames. But the fire averted when it encountered the golf course, drenched by the irrigation system.

"Believe it or not, we lost no turf," Fabrizio says, adding that the only damage was turf speckled by hot ashes. "We also saved our irrigation controllers."

The fire split and went around the course. "The wet turf slowed the fire and made it easier to fight," Fabrizio says.

The wildfires were the worst to hit Florida since 1933. Ninety percent of the blazes were caused by lightning. The fire that hit Matanzas Woods left Fabrizio humbled.

"I have a new respect for fire," he says.

— Larry Aylward

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didn't blow the course's maintenance budget.

But six hurricanes in four years are starting to show their wear and tear on bunkers and slopes throughout the course, and there's no money for renovation.

"We're in the middle of a \$12 million clubhouse project, so no money has been appropriated to fix some of the (damaged) areas on the course," Claffey says.

The opposite happened at Wild Dunes after Hugo. The destroyed holes were rebuilt and the rest of the course was renovated.

"We rebuilt all the greens, several of the tees and improved drainage and irrigation," Fabrizio says, adding that the course also purchased new equipment to replace the damaged ma-

Getting Greens Above Water

It's been raining for 10 days, and your course is flooded. In fact, your bentgrass greens are nearly a foot under water.

It's OK, though. There are things you can do to minimize the damage and help your greens recover from the flood, says Chris Hartwiger, a USGA agronomist covering the Southeast:

- Remove as much sediment as possible from the greens. You don't want a silt or clay layer topping a sand-based green.
- Aerify the greens with hollow tines and remove the cores, which will increase soil oxygen levels.
- Fertilize the greens.
- Apply gypsum if the greens were flooded by salt water or there's sodium deposition.
- If greens are constructed with flush-out ports, flush the drain lines with fresh water until the discharge is clear.

A Tornado, a Pesticide Storage Facility and a Mess

A tornado just ripped through your golf course and clanged your pesticide storage facility with a capital "C." Yes, there are chemical spills, and you're freaking out. But take it easy — there are guidelines to follow to avert such mishaps.

- Stop the spills. If containers are knocked over, restore them to an upright position. If bags of pesticides are soaked with rain, place them in a drum or heavy plastic bags.
- Contact the authorities. The Comprehensive Environment Response Compensation and Liability Act requires that many pesticide spills be reported to the National Response Center at 800-424-8802.
- Prepare a written report. It should contain location and time of spill, the substance and amount that spilled, area where the pesticide was released (air, land, water), potential for off-site movement, your response, human or animals risks and any medical attention required.
- Contain the pesticide leak and isolate the area. Use dirt or pet litter to prevent the pesticide from spreading.
- Clean up as soon as situation has stabilized.
- Use absorbent materials to collect spilled material and dispose of it properly.

Source: USGA Green Section

Stormy Times

- A bolt of lightning reaches a temperature approaching 50,000 degrees F in one second.
- Between 75 and 100 Americans are hit and killed each year by lightning.
- Lightning can strike twice in the same place. In fact, lightning will strike several times in the same place in the course of one discharge.
- The U.S. gets an average of 100,000 thunderstorms annually. About 1,000 tornadoes develop from these storms.
- Straight-line winds exceeding 100 miles an hour are responsible for most thunderstorm damage.
- An F-5 tornado, like the one that struck Oklahoma City in 1999, creates winds between 261 and 318 miles an hour, which can lift homes off foundations and toss cars as far as a football field.

Source: Federal Emergency Management Agency

chinery. "There are positives to all of this if you're adequately insured," he notes.

There's no doubt a superintendent is left feeling flabbergasted after a hurricane wrecks his golf course — but that's when that superintendent needs to gain perspective, Claffey and Fabrizio say.

After Hurricane Floyd hit last summer, Claffey and his crew members didn't make cleaning up the golf course the top priority. "Family members come first and the golf course is second," Claffey says.

After Hugo hit the Charleston area, Fabrizio saw locals sifting through the rubble that was once their homes. "It made me realize there are more important things in life than a golf course and grass," he says.

One might think that Claffey would head inland — all the way to Arkansas — to look for another job after experiencing six hurricanes. But he's staying put, despite the hurricane warning for this summer.

"We love the beach," he says. "(Hurricane season) is just one of the drawbacks of living here. ■



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