

# JUST HOW TOXIC ARE THE CHEMICALS WE ARE USING ON OUR COURSES?

by Dr. Paul Sartoretto

The following presentation by Dr. Paul Sartoretto of the W.A. Cleary Chemical Corp., was made April 9 at Columbia CC. The audience was composed of a regional U.S.G.A. rep meeting with supt's, managers, professionals and other golf enthusiasts. Questions regarding this information can and should be forwarded to Dr. Sartoretto at (201) 247-8000 or through our local contact Don Cherry (804) 740-5656. The issue is and will remain a "hot potato" for some time to come. While we cannot offer the LD<sub>50</sub> table referred to, please feel free to contact Dr. Sartoretto (via W.A. Cleary) to receive a copy. Hopefully this information will help when you're questioned about your chemicals or you overhear someone presenting "myth" as fact.

"For the past fifteen years I have been going around the country speaking at regional or monthly meetings of the Golf Course Superintendents on the subject of tank mixing pesticides with the emphasis on compatibility and avoiding phytotoxicity, as you will see, primarily because of the close similarity of the toughness of the epidermis of the grass blade and our outer skin.

The skin of the grass blade has its stomates through which air and water pass in and out. Whereas our skin has pores through which water diffuses.

In my talk I make a general broad statement that all the insoluble pesticides can be tank mixed and sprayed and you will not incur phytotoxicity. The reason is obvious. Even though the insolubles have to be ground down to micron size in order to get them to disperse in water, the micron particles are too large to diffuse through the stomates. They have to be thousands of times smaller, actually molecular in size and in solution to diffuse into the cells of the grass blade.

The same principle applies to our outer skin. The insolubles cannot be absorbed through our pores because the particles are too large, and only the solubles that are molecular in size can diffuse through the skin.

You can take a certain amount of comfort in knowing that you work with a large number of insolubles and that they cannot penetrate our tough outer layer of skin, and can conclude that epidermal toxicity with insolubles (wetable powders and flowables) is non-existent to a very high degree.

From what you have learned thus far you can see how doubtful the claim was that a golfer died as the result of dermal exposure to Daconil 2787 which is an insoluble and was sprayed on the grass. No way could Daconil have diffused into his body. It could be argued that Daconil

vaporized and that he breathed in a sufficient amount of it to poison him. I will now show you how doubtful this mode of toxicity is with respect to Daconil.

Whereas the grass plant breathes through stomates and receives nutrition not only through the stomates but also the roots, we humans breathe through our lungs and receive nutrition through our mouth, and then via the alimentary canal, by digestion into the blood stream. We measure toxicity primarily by the minimum lethal dosage necessary to kill an animal by ingestion. Let us use aspirin as a bench mark to compare with our pesticides. It takes 1750 milligrams of aspirin for every kilogram of body weight to kill 50% of the animals ingesting it. The MLD<sub>50</sub> of aspirin is 1750 — that's about 6 aspirin tablets. An adult weighing 50 kg (110 lbs.) by extrapolation would die from 50 times the dosage or 300 aspirin tablets. In actuality 10 times the dosage or 60 aspirin is fatal — 17.5 grams about 2/3 of an ounce. Reference is Merck Index.

But Daconil 2787 has an LD<sub>50</sub> of 10,000 mg. That is six times safer than aspirin. That golfer would have had to ingest 100 grams or over 3 ounces of Daconil to have killed him. That's unlikely.

*This article will be continued in the next issue of the MAAGCS newsletter.*

## Watson Recognized By the GCSAA

Tom Watson may be better known for his Masters, British Open, U.S. Open and other golf championship performances, but, to the many thousands of youngsters in his hometown of Kansas City, he's the "man who started them in golf."

Watson's "Clubs for Kids" program was honored in Kansas City on June 6 by the Golf Course Superintendents Association of America (GCSAA) for his "insight and vision in bringing the sport of golf into the lives of numerous youths, thereby enriching the dimensions of their experience."

With volunteer assistance from the Kansas City Parks and Recreation Department, the PGA Midwest section and the Heart of American Golf Course Superintendents Association, the "Clubs for Kids" program has become a model for other golf professionals and their home communities.

More than 1,000 young golfers attend the bi-yearly event, which includes a clinic by Watson plus club fittings and

personal instruction by the area's teaching professionals.

"Tom Watson's creativity and willingness to contribute both personal time and finances into this program benefit everyone involved with the game," said Donald E. Hearn, CGCS, president of GCSAA.

"Volunteerism is a major catalyst to the success of a program like this. The unselfish dedication by the KC Parks and Recreation folks, plus that of the PGA and GCSAA, can't help but create better relationships and encourage additional growth to the game."

## Golf Results . . . June

Our monthly meeting at Green Hill Yacht & CC fielded the second round of our match play tournament. Inclement weather tested both the golfers and tournament director. An amended scoring procedure was used to decide low gross and low net winners after which points were awarded and totaled. Results were as follows: Low gross - Nick Vance; 2nd gross - Tom Regan; 3rd gross - Bob

Orazi; Low net - George Renault; 2nd net - Jim Kelly; 3rd net - Ken Ingram.

**Guest Category:** Low gross - Jack Montecalvo; 2nd gross - Kevin Mathias; Low net - Doug Sanner; 2nd net - Phillip Pennsinger.

Points Awarded	Totals
Nick Vance	7 17
George Renault	10 15
Steve Potter	5½ 14½
Tom Regan	6 13
Bob Orazi	5 13
Wally Whetzel	5½ 12
Ken Ingram	8 10
Jim Kelly	9 9
Grant Pennsinger	2 8½
Howard Gaskill	3½ 7½
Steve Cohoon	3 7
Ben Stag	7 7

The list continues; if you would like to know where you stand, Nick Vance will be glad to answer your questions. A remainder, the third round of our golf tournament will be played at Columbia Country Club. The fourth round will be played at Twin Lakes, September 8 with the final round being played November 10 at Herndon Golf Club.