TPI TURFGRASS PRODUCERS INTERNATIONAL

Turfgrass Producers International

E-Newsletter

June/July 2011

IN THIS ISSUE

- Is artificial turf hiding an 800 pound gorilla? Some health care organizations, medical professionals and research scientists have expressed their concern that exposure to carbon black nanoparticles found in large quantity in TIRES may harm both lungs and the brain. In addition, engineered carbon nanotubes added to strengthen TIRES may be as harmful as breathing ASBESTOS.
- Back To Grass Roots
 Like a breath of fresh air, lawns
 are back in Melbourne.
- Watering down the facts! If synthetic turf fields really conserve so much water, why are some artificial turf fields installing sprinkler systems?
- Is synthetic turf a move in the wrong direction?
- War on weeds can go up in SMOKE.
- Don't confuse me with facts, my mind's already made up! TPI takes issue with commentary featured in the Florida's Orland Sentinel regarding natural grass.
- Where in the world is TPI represented? Country Green Turf Farms in Olympia, Washington.



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Is artificial turf hiding an 800 pound gorilla?

Could exposure and inhaling carbon black nanoparticles and carbon nanotubes found in pulverized tires and the tire crumb used on artificial turf fields be as harmful as breathing **ASBESTOS**?

By Jim Novak Turfgrass Producers International

I'm not a big fan of articles that pose a lot of questions and offer few, if any, answers. Listening to conspiracy theories, hearing "what if" scenarios, or reading articles that make unfounded claims and present mere speculation often do little more than ruffle the feathers of a few people and enrage others.

The debate over the health safety of synthetic turf fields has gone back and forth for years. Concerns about toxic metals, silica sand, staph infections, dangerously high surface temperatures, proper methods of disposal, etc., are just a few of the significant issues that have come under scrutiny.

However, there are times when information comes to light that requires broader attention. Such is the case with a growing concern expressed by many health care professionals and research scientists regarding the possible health consequences of carbon black nanoparticles present in tires that make up tire crumb; the most common infill used on artificial turf fields.

Nanoparticles are particles less than 100 nanometers in diameter. A nanometer is a billionth of a meter, about the size of six carbon atoms in a row.

Carbon Black NANOPARTICLES Carbon NANOTUBES

> For comparison a human hair, is about 80,000 nanometers wide and a strand of DNA is two nanometers wide. To visualize it another way, a nanometer is to one inch as one inch is to 400 miles.

> Whether you are for or against artificial turf this subject is important; especially if you have children who play on artificial turf fields or visit playgrounds that use tire crumb for cushioning; or if you are a student or professional athlete who plays football, soccer, rugby, lacrosse or baseball on fields that use tire crumb as an infill.

Nanoparticles and tire crumb (cont'd from page 1)

THE CONCERN — Carbon black nanoparticles make up 30% or more of car tires; the same tires that are pulverized for creating the tire crumb used on artificial turf playing fields and on playgrounds for children. Engineered carbon nanotubes and other engineered nanoparticles (zinc, titanium, etc.) are often made in specific shapes to give added strength and durability to tires and other goods. It is the long thin nature of engineered carbon nanotubes that has some scientists drawing a comparison between the possible health hazards of tire crumb with asbestos.

How do carbon nanotubes affect lung tissue?

In May of 2008 in an article by Larry Greenemeier for Scientific American he quoted one study that went so far as to suggest, **"Inhaling carbon nanotubes could be as harmful as breathing asbestos."**

The study Greenemier referenced was posted by *Nature Nanotechnology* led by the Queen's Medical Research Institute at the University of Edinburg/MRC Center for Inflammation Research in Scotland. Their research showed that long, needle-thin carbon nanotubes could lead to lung cancer and inhaling carbon nanotubes could be as harmful as breathing asbestos.

A carbon nanotube is a carbon molecule that resembles a cylinder made out of chicken wire that is one to two nanometers in diameter by any number of millimeters in length. Nanotubes have a tensile strength 10 times greater than steel and they are considered the strongest material for their weight known to mankind. It should be noted that carbon black is a natural although manufactured material made up of carbon nanoparticles, carbon nanotubes are created/engineered by scientists and are much rarer although apparently highly toxic at low concentrations.

The study suggested that inhaling carbon nanotubes could lead to the same cancer and breathing problems that prompted a ban on asbestos as insulation in buildings.

The research scientists observed that long, thin carbon nanotubes look and behave like asbestos fibers, which have been shown to cause mesothelioma, a deadly cancer of the membrane lining the body's internal organs (particularly the lungs) and can take 30 to 40 years to appear following exposure.

Asbestos fibers are especially harmful, because they are small enough to penetrate deep into the lungs yet too long for the body's immune system to destroy. Just how small are carbon nanotubes? They are no thicker than an atom, or one billionth of a meter wide, or approximately 10,000 times smaller than a human hair. Andrew Maynard, the study's co-author and chief science advisor for the Woodrow Wilson International Center for Scholar's Project on Emerging Nanotechnologies based in Washington, D.C. has been researching and warning of the potential health and environmental risks of carbon nanotubes since 2003 and is quoted as saying there had been no coordinated effort to date to analyze the findings of carbon nanotube toxicity studies.

Since the initial release of the MRC study other researchers have expressed their concerns as well. The National Institute for Occupational Safety and Health (NIOSH) reported their research methods demonstrate that breathing nanoparticles may result in damaging health effects.

NIOSH scientists invented a way to suspend nanotubes in the air so the concentration of particles could be carefully controlled. Mice were placed into a carefully controlled environment where they could breathe the air containing the particles. Scientists studied the effects of exposure after 1, 7, and 28 days. The research showed that carbon nanotubes were more potent when inhaled than when aspirated. In addition, the research showed early indications of serious health outcomes that may have longer term effects such as cancer, and therefore, ongoing research is important to more clearly understand the implications of exposure to carbon nanotubes.





Carbon Nanotube:

Researchers studied multiwalled carbon nanotubes comprising anywhere from two to 50 cylinders concentrically stacked with a common long axis. Image: Courtey of the University of Edinburgh/MRC Center for Inflammation Research

> **Dangerous similarity:** Asbestos (*top*) and long, multiwalled nanotubes (*bottom*) cause similar chronic inflammation in mice. Image: C. A. Poland et al., University of Edinburgh

Page 3

Nanoparticles and tire crumb (cont'd from page 2)

In May 2008, Nature Nanotechnology reported a similar finding, "Carbon nanotubes introduced into the abdominal cavity of mice show asbestos-like pathogenicity in a pilot study."

The study reported, "Carbon nanotubes have distinctive characteristics, but their needle-like fiber shape has been compared to asbestos, raising concerns that widespread use of carbon nanotubes may lead to mesothelioma, a cancer of the lining of the lungs similar to that caused by exposure to asbestos.



Source: Donaldson et al. Particle and Fibre Toxicology 2010 7:5

Exposing the mesothelial lining of the body cavity of mice, as a surrogate for the mesothelial lining of the chest cavity, to long multi-walled carbon nanotubes results in asbestos-like, length-dependent, pathogenic behavior. This includes inflammation and the formation of lesions known as granulomas. This is of considerable importance, because research and business communities continue to invest heavily in carbon nanotubes for a wide range of products under the assumption that they are no more hazardous than graphite. Our results suggest the need for further research and great caution before introducing such products into the market if long-term harm is to be avoided."

Source: Nature Nanotechnology 3, 423 - 428 (2008) Published May 20, 2008 | doi:10.1038/nnano.2008.111.

How do carbon black nanoparticles get to brain tissue?

Peter Gehr, a professor of Histology (the study of tissue) and Anatomy at the University of Bern in Switzerland stated that synthetic nanoparticles can penetrate tissue and cells, and spread throughout the body - even to the brain.

Gehr is astonished that potential health risks of synthetic nanoparticles are barely acknowledged outside the scientific world and government agencies. "If nanoparticles are not solidly bound to another material, there is a risk that we could inhale them. They can enter the bloodstream and spread throughout the entire body. The mere fact that particles penetrate into the body is a problem."

Source: Natural resources in Switzerland - Environment - Nanotechnology 3/20/2010, Federal Office for the Environment



Nanoparticles can penetrate into tissue and cells, and spread throughout the body via the bloodstream. This enlarged image of red blood cells, which was produced at the University of Bern, Institute of Anatomy, using a laser scanning microscope, shows green nanoparticles that have penetrated the cells. Photo: Barbara Rothen-Rutishauser, Institute of Anatomy, University of Bern



Carbon black is added during tire manufacturing and make up approximately 30% of the final product.



Millions of used tires are recycled to create tire crumb.



The New York State Department of Public Health reports that tire crumb pellets from tires range in size from about one-sixteenth to one-quarter inch in diameter and are typically applied at a rate of two to three pounds per square foot of field's surface.



Tire crumb is the most common infill on synthetic turf fields.

June/July 2011

Cont'd on page 5

Turfgrass Producers International E-Newsletter

Carbon Black Nanoparticles — What about the children?

(2) Because none of the risk assessments done up to the present time on rubber tire crumbs or playground mulch have taken into consideration the fact that carbon black nanoparticles have been added to rubber tires -- how does this fact affect the claim by some states that rubber tire crumbs and rubber tire playground mulch are safe for children to play on?

- (3) As children play on synthetic turf fields and playground mulch - dust develops. Are nanoparticles in the dust? If so, are they capable of being aspirated into the children's lungs? Who is researching this? Rubber tires are designed for cars and trucks they were never designed for grinding up and putting where children play. How does this fact affect some states approvals for putting used tire crumb where children play?
- (4) Could this be another example of a toxic material getting out into the environment without enough testing?

Environment and Human Health, Inc. (EHHI) is a nine-member, nonprofit organization composed of doctors, public health professionals and policy experts. The organization is dedicated to protecting human health from environmental harms through research, education and the promotion of sound public policy. EHHI is committed to improving public health and reducing environmental health risks to individuals.

2008–2009 Annual Report—U.S. President's Cancer Panel

"Nanomaterials can be extremely toxic, and despite their promise, concern is growing about their potential health and environmental risks. Because of their structure and small size, they can be inhaled, ingested, and absorbed through the skin, entering the blood stream, penetrating cells throughout the body (including the brain), and perhaps interfering with DNA processes.(1)

In August 2009, seven young Chinese women suffered permanent lung damage and two of them died after working for months without adequate protection in a paint factory using nanoparticles.(2) cell membranes cannot be removed.(3)"

SOURCE: 2008–2009 Annual Report—President's Cancer Panel **REDUCING ENVIRONMENTAL CANCER RISK** What We Can Do Now

http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP_Report_08-09_508.pdf

- Ι. Nudelman J, Taylor B, Evans N, Rizzo R, Gray J, Engel C, Walker M. Policy and research recommendations emerging from the scientific evidence connecting environmental factors and breast cancer. Int | Occup Environ Health, 2009:15:79-101.
- Lyn TE. Deaths, lung damage linked to nanoparticles in China [Internet]. 2. News Daily. 2009 Aug 19 [cited 2009 Nov 7]. Available from: http:// www.newsdaily.com/sotries/tre57ily7-us-china-nanoparticles/
- 3. Song Y, Li X, Du X. Exposure to nanoparticles is related to pleural effusion, pulmonary fibrosis, and granuloma. Eur Resp J. 2009;34(3):559-67.

Once inhaled, nanoparticles that penetrate pulmonary epithelial cells or aggregate around red blood



Environment and Human Health, Inc. has asked the

used in toddlers' playgrounds?

following questions about nanoparticles in the tire crumb infill used as mulch for playgrounds used by children:

(1) How does the knowledge that carbon black nanoparticles are added to rubber tires affect the risk assess-

ments done on synthetic turf and the rubber mulch

Page 5



"Carbon black is the proverbial 800 pound gorilla in the room that no-one wants to talk about ..."

Perhaps neuroscientist, Dr. Kathleen Michels summarized it best:

"Carbon black is the proverbial 800 pound gorilla in the room that no-one wants to talk about, or take notice of, but it has the potential to wreck everything in its path. First, it has been declared a possible carcinogen by the US government and by the World Health Organization. Then, carbon black used in tires consists of the purest, smallest (ultrafine) nanoparticles giving them a unique potential toxicity throughout the body.

"Normally this might not be a problem for any individual, since most of the carbon black is trapped inside a tire. However, when you pulverize tires for use in children's playing fields, whether done at ambient or cold temperatures- everything in them (including carbon black particles) becomes more available to interact with the environment and people since the surface area to volume increases exponentially as you go from whole tire, to pulverized tire granule to the dust that becomes airborne with weathering and the impact of each child's footfall and body.

Finally, the sheer concentrated volume of this pulverized carbon black material should get serious attention: tires are 30% or more carbon black so a 200 ton tire-crumb laden sports field contains around 60 TONS of carbon black. An unprecedented exposure that deserves serious attention and research. "But carbon black is not the only nanoparticle containing component of tires. Engineered nanoparticles such as carbon nanotubes, which may have asbestos like toxicity, are also being added to tires. But how much and to which tires is difficult to determine. Which highlights a main problem with tire crumb: the recipe of any company's tires is proprietary so we never know exactly what the ingredients are for any individual tire much less a bag of tire crumb (and even less the 30,000 or so tires in a sports field!).

"Some schools which have tire crumb on fields or playgrounds close to their classrooms report a fine gray dust on school surfaces inside when windows are open. Most artificial turf fields with tire crumb are still relatively young. There is no evidence yet of long term harm from this unprecedented, often chronic, exposure of children to carbon black or other tire components from playing on tire crumb; but then again there are no studies on children exposed chronically to tire crumb over time. But there are worrying studies on exposure to carbon black particles in the air. Shouldn't we be asking the questions and following up on the exposed children with research? Even better, shouldn't we limit children's exposure to this rich source of exposure to carbon black and other known and unknown toxins in tires? When children's life-long health is at stake, the precautionary principle should apply." - Dr. Kathleen Michels

IMPORTANT:

There are different types of nanoparticles made of different building blocks and each type of nanoparticle can be unique in its actions and effects, and act differently in engineered products as well as in the body.

It is true that frequent exposure to nanoparticles from many consumer products means some nanoparticles are getting into us. It is also true that cell studies suggest that some types of nanoparticles can damage the DNA or cause cell death in different parts of the body, such as the brain, the lungs or blood vessels.

The term "nanoparticle" is not intended to apply to all nanoparticles but in this case <u>carbon black nanoparticles</u>.

Turfgrass Producers International E-Newsletter

Page 6

Nanoparticles and crumb rubber (cont'd from page 5)

"People either have no idea about nanoparticles or do not regard them as a problem. The potential risks are also of little interest at the political level. People are simply not reacting to the possible harmful aspects of synthetic nanoparticles right now. The mere fact that particles penetrate into the body is a problem, but this is barely acknowledged outside the realms of science and government agencies." - Dr. Peter Gehr, Professor of Histology and Anatomy at the University of Bern

The comments expressed on the previous pages were based on research reports and articles from numerous healthcare organizations, research scientists, health care professionals and nanotechnology experts who represent a wide variety of non-biased and reputable sources. Because the subject matter is likely to stir interest and create some controversy we have provided a partial list of numerous reference materials so readers can reach their own conclusion. -J. Novak

Study Says Carbon Nanotubes as Dangerous as Asbestos New research shows long, needle-thin carbon nanotubes could lead to lung cancer. Scientific American

http://www.scientificamerican.com/article.cfm?id=carbon-nanotube-danger

Association of Black Carbon with Cognition among Children in a Prospective Birth Cohort Study

Harvard School of Public Health published in American Journal of Epidemiology http://aje.oxfordjournals.org/content/167/3/280.full

As Nanotech's Promise Grows, Will Puny Particles Present Big Health Problems?

Amid the great promise nanotechnology offers, big questions remain on health dangers posed by exposure to tissue-penetrating particles. Scientific American http://www.scientificamerican.com/article.cfm?id=will-nano-particles-present-big-health-problems

How dangerous are carbon nanoparticles?

Fraunhofer Institute for Toxicology and Experimental Medicine http://www.item.fraunhofer.de/en/press-media/latest-news/pm-carbonblack.jsp

NIOSH Research Methods Demonstrate that Breathing Nanoparticles May Result in Damaging Health Effects National Institute for Occupational Safety and Health

http://www.cdc.gov/niosh/docs/2010-158/pdfs/NanotechParticles.pdf

Acute Pulmonary Response of Mice to Multi-Wall Carbon Nanotubes

Inhalation Toxicology, 22(4): 340-347 (March 2010) http://www.nanolawreport.com/ln_Vivo_Abstracts_part_45.pdf

Carbon Black

Wisconsin Department of Public Health http://www.dhs.wisconsin.gov/eh/chemfs/fs/carblack.htm

Grappling With The "Gray Zone," Feds Focus on Nano Workers' Health

New Haven Independent http://www.newhavenindependent.org/index.php/archives/entry/ grappling_with_the_gray_zone_/

Multi-Walled Carbon Nanotubes-Significant New Use Rule

Environmental Protection Agency http://www.gpo.gov/fdsys/pkg/FR-2011-05-06/pdf/2011-11127.pdf

Frustrated phagocytes and the fibre paradigm

Diamond Environmental Ltd independent Health, Safety and Training consultancy. http://diamondenv.wordpress.com/2011/04/15/frustrated-phagocytes-and-the-fibre-paradigm/

Nanotechnology's Public Health Hazard?

Science Now http://news.sciencemag.org/sciencenow/2008/05/20-01.html

Carbon Nanomaterials: Fine for Fly Food, Bad for Fly Coating Scientific American http://www.scientificamerican.com/article.cfm?id=carbon-nanomaterials-bad-for-fruit-fly-coating

Synthetic Athletic Fields - A Question of Ingestion The City of San Francisco City Fields Foundation http://www.youtube.com/watch?v=8zsodulEmz0

Inhaled Carbon Nanotubes Reach Subpleural Tissue in Mice Nature Nanotechnology, 4(11): 747-751 http://www.nanolawreport.com/ln_Vivo_Abstracts_part_41.pdf

Nanoparticles Induce Changes of the Electrical Activity of Neuronal Networks on Microelectrode Array Neurochips Environmental Health Perspectives http://ehp03.niehs.nih.gov/article/fetchArticle.action?articleURI=info%3Adoi%2FI0.1289% 2Fehp.0901661

Toxic Potential of Materials at the Nanolevel

Science 3 February 2006: Vol. 311 no. 5761 pp. 622-627 DOI: 10.1126/science.1114397 http://www.sciencemag.org/content/311/5761/622.abstract

YouTube VIDEO — "Toxic Chemicals: The Safety of Synthetic Fields and How Environmental Laws are Failing Our Children" — 9:40 into nanoparticles

Speaker: Dr. Joel Forman, Associate Professor of Pediatrics and Community and Preventive Medicine, Mt. Sinai School of Medicine and other researchers offer their latest findings on the potential health and environmental risks associated with crumb rubber in-fill used on synthetic turf fields. Panel: Dr. Susan Buchanan, Clinical Assistant Professor, Environmental and Occupational Health Sciences, University of Illinois Chicago; Dr. Helen Binns, Professor in Pediatrics and Preventive Medicine, Children Memorial Hospital Chicago and Carolyn Raffensperger, Environmental lawyer and Executive Director of Science and Environmental Health Network.

http://www.findallvideo.com/toxic-chemicals-safety-synthetic-fields-how-environmental-lawsare-failing-our-children-pt-02/id/3325988535

Induction of Inflammasome-dependent Pyroptosis by Carbon Black Nanoparticles

The Journal of Biological Chemistry http://www.jbc.org/content/286/24/21844

Nanoparticles can penetrate brain tissue

Interview with Dr. Peter Gehr, Professor of Histology (the study of tissue) and Anatomy at the University of Bern in Switzerland by the Federal Office for the Environment (the Swiss federal government's center of environmental expertise) Dr. Gehr is internationally renowned as a researcher and for his studies on the behavior of nanoparticles in the lungs and on their interaction with cells. http://www.bafu.admin.ch/dokumentation/umwelt/10649/10659/index.html?lang=en Page 7

Turfgrass Producers International E-Newsletter

30 Mar - 3 Apr 2011

Back To Grass Roots

"Like a breath of fresh air, lawns are back in Melbourne and the turf industry and its customers can breathe a little easier."

WER GARDENSHO

Royal Exhibition Building and Carlton Gardens

Bruce Stephens, Manager Anco Seed and Turf Pty Ltd.

Ranked in the Worlds top 5 Flower and Garden shows, the Melbourne International Flower and Garden Show (MIFGS) is held annually at Melbourne's Royal Exhibition Building and Carlton Gardens. The show attracts in excess of 100,000 people over 5 days.

In a return to traditional Australian backyard values this year's show saw a revival of interest in "Real" grass lawns over their synthetic counterpart.

Following years of drought a surge in the popularity of synthetic lawns had penetrated the suburban landscape of Melbourne to the detriment of natural lawns and the associated environmental benefits. Turfgrass farmers are a major component of the total horticultural industry in Australia and have had a tough going the past 5 years because of water restrictions.

The demand for the synthetic product had increased as evidenced by five synthetic stands displayed at the 2006 MIFGS. In a dramatic turnaround, through public demand, only one synthetic turf company displayed this year while six "Real" turf stands were there to give advice on how to develop a drought tolerant lawn in the Melbourne and Victorian climate.

According to **Bruce Stephens** of Anco Turf, "We believe the message is finally getting through to the public that lawns are not the water guzzlers they were wrongly portrayed to be. The public is now better educated to deal with drought and they have learned about the significant benefits of having real turfgrass around their homes. We attended MIFGS again this year to fly the flag for natural turfgrass and to promote our industry. This year we built a suburban backyard display with plants, flowers and plenty of lawn area to showcase our drought tolerant products. As a member of Turf Australia and Turfgrass Producers International we encourage turfgrass growers to get involved with these sorts of shows. It helps to educate the masses and sales are the end result."

Designed by well known Victorian Landscape artist Ros McCully, the backyard was complete with an Old Tin Shed and the iconic Australian Hills Hoist Clothesline with baby clothes hanging from it. "In line with the current trend my client wanted a modern backyard that provided a look back in time where kids could play safely on a natural clean surface", stated Ros McCully.

The Anco staff reported a surge of patrons flowing through the stand seeking advice. "The feedback was they want a real lawn and now know they can grow one despite water restrictions still being in place. Like a breath of fresh air, Lawns are back in Melbourne and the turf industry and its customers can breathe a little easier, said Stephens.

Below is a link to a You Tube video about the show that includes a feature segment on Anco's display and their presence at the show. www.youtube.com/user/AncoTurf#p/u/0/98L0t3tKMpQ



Photos courtesy of Bruce Stephens-Anco Seed & Turf.Ltd.

TPI thanks Bruce Stephens for bringing this story to our attention. If you have a story you would like to submit please forward to: jnovak@TurfGrassSod.org

WATERING DOWN THE FACTS!

The Synthetic Turf Council suggests that the environmental impact of synthetic turf and artificial grass is significant, and each year more than 2.2 billion gallons of water are conserved nationwide by over 5,000 synthetic sports fields.

http://www.syntheticturfcouncil.org/displaycommon.cfm?an=1&subarticlenbr=62

If synthetic turf fields really conserve so much water, why are some of these fields installing sprinkler systems that really pour on the water?

Although the manufacturers and/or installers of synthetic turf fields will often boast that their product eliminates the need for water, just the opposite is becoming evident on a growing number of artificial fields.

For example, the University of Iowa installed a state of the art irrigation system last year to accommodate their field hockey playing surface. Why? One would suspect there were health and safety issues taken into account and concerns regarding high surface temperatures. When it was all said and done the new system could apply nearly 6,600 gallons of water to the field in less than 20 minutes. While we're certainly not taking issue with the University of Iowa, we are questioning synthetic literature and sales pitches by synthetic turf sales reps who push their "eliminates the need to use water" like natural turfgrass.

In an article by Paul Steinbach written for Athletic Business several years ago he noted; "Irrigation experts caution that even today's advanced synthetics aren't maintenance-free. Rare is the synthetic football field specified today without in-ground irrigation, typically designed as eight heads throwing water far enough from outside opposite sidelines to overlap between the hash marks. Uniform coverage isn't essential, since the goal here has nothing to do with nurturing plant growth. "Typically, the first reaction is to not irrigate synthetic turf," says Brad Waters, a representative of irrigation manufacturer

Rain Bird, who sees the benefit of synthetic-turf irrigation not so much in commonly cited heat and static reduction, but in basic cleansing. "Kids spit, they bleed, they do other things on synthetic turf that aren't clean. Now you can get a synthetic-turf football field clean without having to pop a lot of heads out there."

During the midst of what may have been one of the worst droughts ever in North Carolina a few years ago, Duke University and the University of North Carolina at Chapel Hill were watering the synthetic turfs used by their field hockey teams.

The International Hockey Federation insisted the universities were not breaking any rules. But as residents in Durham and Chapel Hill were seeing their plants and lawns wither, the sprinklers were going on at Duke's Williams Field and UNC-Chapel Hill's Francis E. Henry Stadium, so reported Raleigh's The News & Observer. They also reported that a Chapel Hill contractor, who was doing work in Durham, saw the sprinklers go on one afternoon at Duke and drove around the block to make sure he wasn't seeing things. "Sprinklers aren't even the right term, they're like fire hoses, I couldn't believe it." Schnurr said. "

The International Hockey Federation requires the college teams to saturate the synthetic turfs before each practice and all games.



Hunter Irrigation promotes their Hunter ST System (photos above) as "First and only cost-effective solution designed to exceed the unique and specific needs of the synthetic turf irrigation market."

Performance Data Domestic 103 feet radius, 74.5 GPM at 100 PSI 109 feet radius, 77.0 GPM at 110 PSI 115 feet radius, 79.6 GPM at 120 PSI

Performance Data Metric 31.4 meters radius, 16.9 m3/hr, 282 l/m at 6.9 bar; 690 kPa 33.2 meters radius, 17.5 m3/hr, 292 l/m at 7.6 bar; 760 kPa 35.1 meters radius, 18.1 m3/hr, 301 l/m at 8.3 bar; 830 kPa

Don't confuse me with facts, my mind's already made up!

Motto of some of today's journalists

TPI takes issue with commentary featured in the Orlando Sentinel

Submitted to Terri Wineforder, Letters/Op-Ed Editor on 6/9/11

The comments by Mike Thomas in multiple articles pertaining to natural turfgrass, <u>"Water-gulping grass is ruining</u> <u>Florida" (May 23)</u> and <u>"Hate grass? Here's how to get rid of</u> <u>it" (May 29)</u> have something in common other than the subject matter, and that's the liberty Mr. Thomas has taken with the facts.

Both articles are obviously written with a great deal of passion. What is most troubling though is the intentional or unintentional bias towards research addressing the benefits of turfgrass.

To suggest that front yards are the real threat facing Florida and to use attention-getting statements such as "Big Grass is worse than Big Oil," "Big Grass opposes a federal effort to clean up Florida's waterways," "Big Grass lies" and many other misinformed statements such as "the University of Florida is a taxpayer-subsidized tool of Big Grass" is more than going a bit overboard it's pure sensationalism.

To suggest "anything with roots controls erosion and buffers noise" shows a lack of knowledge when it comes to the fibrous root system and plant density of turfgrass. To further suggest that lawns are an alarmingly and probably underestimated source of water pollution is also subject to challenge based on what research one chooses to select to build his or her case on. Properly maintained lawns can actually reduce the runoff of pollution.

Mr. Thomas suggests he could go on and on, and so too could I, but there are far too many missteps in his commentary and there is far too little room to address all of them.

I would suggest that Mr. Thomas review the <u>"Benefits of</u> <u>Green Space – Recent Research"</u> report dated April 25, 2011 that was released by The Environmental Health Research Foundation (EHRF). The EHRF is a nonprofit, nonpartisan scientific research foundation headquartered in Chantilly, Virginia. The Executive Director of EHRF is Dr. John Heinze who brings over 20 years of research to the table. In addition to his expertise in microbiology, molecular biology, genetics, and toxicology, Dr. Heinze has authored over 35 scientific papers. The "Benefits of Green Space - Recent Research" focuses on the benefits of turfgrass and cites primarily peer-reviewed, published studies as well as government and academic reports to document the objective basis of benefits of a healthy, properly maintained green space. The report summarizes the most current findings (since 2000) to ensure reliance on the most up to date research. It should also be noted that, and I quote, "the studies in this report focus on the benefits of "turfgrass" or "turf". In everyday parlance, these terms are typically associated with the broader notion of "green space," which typically connotes such turf-related surfaces as residential lawns, commercial or institutional turf surfaces and public facilities such as parks and playing fields. For the purpose of this Report, all of these terms have been consolidated under the umbrella notion of "green space" but specifically link back to the benefits of turfgrass or turf."

In reviewing this document Mr. Thomas will find that a healthy, properly maintained lawn provides substantial benefits to the environment in terms of erosion control, water purification, air purification, temperature modification, energy and cost saving, oxygen generation and carbon sequestration. Our lawns also provide substantial benefits to human health in terms of recreation, increased physical activity, reduced risk of obesity and stress reduction. Overall, the data presented in the detailed reports (over 50 scientific studies from 2000 to 2010) validate the environmental benefits of turfgrass and rebuts the notion that the need for healthy, properly maintained turfgrass is only ornamental or aesthetic.

Mr. Thomas is a clever writer. He certainly knows how to grab a reader's attention with catchy phrases and a commentary that relies more on creative license than scientific fact. One thing he does lack however is distinguishing fact from fiction.

Jim Novak Public Relations Manager Turfgrass Producers International

War on weeds can go up in **SMOKE**



Bans on pesticides in Victoria, British Columbia have resulted in some people searching for eco-friendly solutions to address a growing weed problem. As an alternative to hand-pulling the weeds some folks have resorted to using weed-burning torches. Yes, sales are up, but so too are the unforeseen consequences.

The ban on cosmetic pesticides in Victoria, British Columbia influenced a decision on the part of a Victoria couple to purchase a weed-burning torch to kill weeds on their patio.

What seemed like a quick-fix, eco-friendly solution to their weed problem only created a bigger problem, their house caught on fire and suffered severe damage.

The couple in question, Jason and Maureen Reid, reported they were using the torch as recommended by the manufacturer to kill weeds between patio pavers when their house went up in flames.

Although fires caused by weed-burners are rare, at least six have been reported in North America over the past decade.

Resembling a watering wand with a propane canister on one end, the hand-held torches are advertised as an environmentally friendly alternative to pesticides. Reid says the product shouldn't be on the market.

Victoria is one of 29 municipalities in British Columbia that have restricted cosmetic pesticides in recent years, and last month, B.C.'s Liberal government established a special committee to look at a possible province-wide ban. As for the Reid's, we suspect they will find another solution to deal with their war on weeds. In a similar story reported several years ago a retired UK scientist, Dr Robert Gailey of Paisley, Scotland was using a gas-powered weed torch in his front yard when sparks from the tool ignited his neighbor's garden and incinerated their front yard.

"I assume a spark flew from my path to the base of one of the bushes in the next garden and the first thing I saw was a little smoke rising, I went down and looked in and there was an intense fire inside the bush.

"I switched it off and ran as fast as I could to the back of my house and got my garden hose and turned it on and ran back up to the front and already there was a huge amount of smoke coming out the bushes and flames were leaping up. The bushes were at least eight feet high and the flames were going at least as much again. Neighbors all gathered around to watch the fire and one of them said it was the most exciting thing to happen in the 18 years she'd been here."

The story has since gone down in Paisley folklore which bemused Dr Gailey who commented, "How is it I can work as a scientist for 40 years and nobody wanted to know me, I burn my neighbors' garden and everyone does!"



Turfgrass Producers International E-Newsletter

Page 11

Where in the world is TPI represented? EVERYWHERE!

An on-going series featuring photos and copy from TPI member websites.

Country Green Turf Farms Olympia, Washington

http://www.countrygreen.net/index.html





Welcome to **Country Green Turf Farms**, where we provide the highest quality of agricultural products in the Northwest.

Country Green Turf farms has been providing high quality sod to meet any turfgrass need since 1988. In addition to growing sod we also provide several other services such as hydro seeding, fertilizer, land-



scape supplies and lawn establishment support..

Here at Country Green, we offer the personalized feel that you are looking for as we are dedicated in providing you with information and products that will give you the best looking lawn possible. Our trained and skilled staff will be able to consult with you, answer questions, and give you their expert knowledge on anything and everything that has to do with your lawn. This combination of professional service with high quality products has given us the formula for success. When it comes to professional turf products and service, nobody does it like Country Green.

Proud Member of Turfgrass Producers International



TurfSide-UP

IN A PINCH?



Designed by Turkish artist Mehmet Ali Uysal, a professor of art at the Middle East Technical University, the giant sculpture is just one piece in a string of Uysal works that rely on flawless illusion. (Location: Chaudfontaine Park, Belgium)

"My fellow citizens...we would never spend your tax dollars frivolously?"

- Mayor C. Gull, Featherhead, Nova Scotia



At first we were amused by this photo and then we began to scratch our head and wonder . . . who in their right mind would allocate tax dollars for a sign that was intended for birds to understand?

Correction

In last month's E-Newsletter we reported that **StrathAyr Instant Lawn** in Richmond, Tasmania, Australia has been a supplier to homes throughout <u>Mebourne</u>, Victoria, Australia. Several readers notified us that the city is **Melbourne** not Mebourne. We know better and apologize for the error. Explanation — The truth is, we really don't know how the "L" that happened!

PURDUE UNIVERSITY. Turfgrass Program

Why synthetic turf is a move in the wrong direction



Dr. Aaron Patton, Turfgrass Extension Specialist Purdue University.

With continuing efforts to increase the sustainability of all of our communities, synthetic turf is a move in the wrong direction. Synthetic fields do not require fertilizer or pesticides, which may make them seem environmentally friendly but keep in mind the following:

- Synthetic fields are made of plastic and then in-filled with pulverized rubber particles instead of plants as on a natural grass field.
- Both the synthetic turf and the rubber must be disposed of when the field reaches its life capacity (8-10 yrs). Natural grass fields require renovation less frequently with much reduced renovation costs.
- Synthetic fields do not cool the environment like natural turf.
- Synthetic fields and natural grass fields have similar irrigation requirements since both need irrigation in warmer months and little to no irrigation in cooler months.
- Synthetic fields do not help to filter air and water pollutants.
- Synthetic fields do not fix CO2 (carbon-dioxide) and release O2 (oxygen) as do natural grass fields.
- The net carbon loss for a synthetic field is high, whereas a natural grass field will have a net carbon gain despite the need for fertilizer and some pesticide inputs to maintain a natural grass.

I don't dispute that there are certain situations in which an artificial field might be an appropriate choice and I don't disregard a coach's preference. We also do not dispute that an artificial field could host more events each year, which could be beneficial in certain situations. I simply wanted to write this turf tip to provide some additional information about artificial turf fields that you are not likely to get from companies who supply these products. Please take a look at the references below for more information about synthetic athletic fields. — Dr. Aaron Patton

Dr. Aaron Patton is assistant professor of agronomy serving as turfgrass extension specialist at Purdue University, West Lafayette, IN

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