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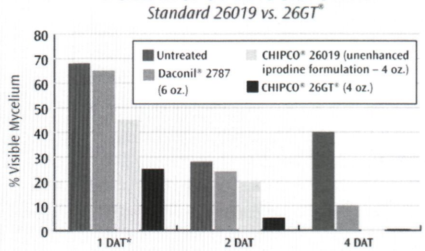

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A Big "Thank You" for Wayne Kussow

By Monroe S. Miller, *Golf Course Superintendent, Blackhawk Country Club*

Many of you will remember the Wisconsin Turfgrass Field Day in 2000. It was memorable for a lot of reasons, but mostly because we honored Wayne Kussow and his very distinguished career as a faculty member of the University of Wisconsin - Madison with a fully funded Wisconsin Distinguished Graduate Fellowship named for him. For all time there will be a graduate student in the Department of Soil Science with a research project that will advance the turf industry in Wisconsin. From August 8, 2000 forward, people will be reminded of the high regard we held for Wayne during his time on the faculty. Really, there could be no greater way for us to express that respect and esteem we have for Wayne Kussow than this. And we didn't wait for his retirement - or worse, his passing - to make that happen, so strong were our feelings of gratitude.

Wayne Kussow, as I have thought about it, is the quintessential Wisconsin man. He grew up on a dairy farm in northeast Wisconsin, one of five boys. He graduated from Oconto Falls High School and decided to attend Wisconsin's Land Grant University in Madison where he earned three degrees in Soil Science - a BS in 1961, a MS in 1963 and a PhD in 1967.

His faculty career at Wisconsin is really in two parts — international agriculture and turfgrass science. You may not be aware of his accomplishments before he came to us. He was an assistant professor of soil science at Porto Alegre in Brazil, a senior research advisor in Brazil, as well as a rice research advisor there. He worked for USAID in Nigeria and Indonesia and was with the UW - Madison Land Tenure Center in the Dominican Republic. He also was a professor at

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the University of Delaware in the late 1960s. In the early 1980s he was the associate director of the International Agriculture Program for the College of Agricultural and Life Sciences.

And then, thanks to the wisdom and foresight of Dr. James R. Love, Wayne was approached and asked by him to consider assuming Love's responsibilities for the University of Wisconsin turfgrass science program. That was in 1985. When Wayne agreed to do that, the second half of his career began.

Regardless of what Wayne's official appointment assignment has been over the intervening years, he spent his time well in teaching, research and extension. Teaching in the College of Agricultural and Life Sciences carries with it serious responsibilities for undergraduate advising. Wayne has a group of advisees each semester - usually 25 to 35 students - who likely appreciate him the most for the good advice he gives them. His office door is ALWAYS open and he is available to students whenever he is there. He, in many ways and for many kids, makes this very large university more like the small town many of them grew up in. He is so friendly and compassionate and insightful. His former students are his biggest fans for a good reason. The CALS recognized him a few years ago with the College Advisor of the Year award. Also, Wayne has been the advisor to the Badger Turf and Grounds Club since 1985, giving him 20 years in that voluntary position.

Many faculty, I'm sure you have read and heard, dislike teaching and the attending classroom activities. Not Wayne. He has taught Soil Science 301 for years and years, and has taught other courses in soil fertility and plant nutrition. He has also been a short course instructor.

Wayne brings a powerful intellect to our profession through his research. And the good science he has done, both in the field and in the lab, always had as its end goal, help for us, the end users. The dedication he has shown to us demonstrates his belief in the Wisconsin Idea, the notion that the boundary of the campus is actually the boundary of the state. Whether it was research concerning runoff studies, root zone amendments, plant nutrition and fertilizer or soil testing, Wayne has had our welfare in his mind always.

The outreach activities of Dr. Kussow, often on his own time, may inspire and impress me the most. He gives freely and generously of that time and gives us straight answers. His writing in our industry publications, especially the GRASS ROOTS and the WISCONSIN TURFGRASS NEWS, is clear, concise, logical and flawless. The advice he has given to us over the years has traveled all over the country and been taken by colleagues in many other states. As a long time editor, I can tell you I NEVER change a word in any manuscript Wayne submits for publication, other than to insert "Dr." before his name on the author line, which he also NEVER does!

We have all heard Dr. Kussow speak many times and in many places. Many of us have called his office for help and then experienced the relief that comes when he drives to our golf courses and sod fields or whatever our place of business might be to see if he can help. It is no wonder Wayne is revered by everyone in our industry.

Wayne has had an exceptional career, but what else would you expect from such an exceptional man? We were fortunate to have had him in our midst for the last twenty years. It really is nearly impossible to express our gratitude, but we want to give Wayne and Carol Kussow a gift of travel as a token of our thanks. Travel and trips can make for some great memories, and our hope is that they will hang some of those memories on the walls of their favorite rooms at home and be reminded of how much we thought of this former farm kid from Oconto County.


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Spray Volume Can Have an Enormous Effect!

By Dr. R. Chris Williamson, *Department of Entomology, University of Wisconsin-Madison*

Spray volumes or flow rates of pesticide sprayers vary among preference of applicators, product(s) to be applied (including type and formulation), intended application site (i.e., putting green, fairway, athletic field, home or commercial lawn), etc. Less than a decade ago, flow rates of 3-5 gallons per 1000 square feet were not uncommon. Since then, many pesticide applicators have dramatically lowered their flow rates to near 0.5 gallons (spray volume = product(s) and water) per 1000 square feet (≈ 22 gallons/acre). This shift is likely in part due to convenience as well as development of pesticide formulations. Time is often equated with money; for this reason pesticide applicators are continuously looking for ways to save time (≈ money). As a result, they have resorted to reducing the number or frequency of times they must fill their spray tank, thus saving time. Additionally, pesticide manufactures have made a concerted effort to develop pesticide formulations that enable pesticide applicators to dramatically reduce spray volumes.

Depending on the pesticide type (i.e., fungicide, insecticide, herbicide, plant growth regulator, etc.), flow rate can significantly influence the performance (efficacy) of a control product. Typically, most herbicides can effectively be applied at relatively low spray volumes (< 1 gallon per 1000 square feet). Depending on the mode of action (i.e., contact, systemic, etc.), many fungicides should be applied at slightly higher spray volumes than herbicides (i.e., 1-2 gallons per 1000 square feet). While some insecticides, especially white grub control products, should be applied at higher spray volumes, ideally 2-4 gallons per 1000 square feet to maximize efficacy.

As a time-saving measure, many turfgrass managers prefer to tank-mix combinations of control products (e.g., insecticides, fungicides, wetting agents, micronutrients, etc.). In theory, this approach sounds rational or justified; however, this approach can potentially result in poor control product performance. As previously stated, certain control products require (i.e., pesticide label) specific application spray volumes, and when they are not applied according to the label recommendations, their performance is jeopardized! For this reason, it is critical to fully read and follow the pesticide label to avoid any potential incompatibilities (i.e., spray volume or chemically, including formulation and pH).

Another factor to consider is the selection of spray tip or nozzle. Nozzle size directly effects droplet size, which in turn influences flow rate as well as coverage of control product. Subsequently, performance of a control product is impacted by nozzle selection. The majority of nozzles used in agriculture can be classified as producing either fine, medium, course or very course droplets. The most common nozzles used in the turfgrass arena are those nozzles producing medium-sized droplets; they can be used for contact and systemic herbicides, per-emergence surface applied herbicides, insecticides and fungicides. When choosing a spray nozzle that produces a droplet size in one of the aforementioned categories, it is important to consider that one nozzle can produce different droplet size classifications at different nozzle pressures (psi). For example, a nozzle may produce medium droplets at low pressure, while producing fine droplets as pressure increases. Spray nozzle selection information (i.e., drop size, output, etc.) can be obtained from respective manufacturer.

When using any pesticide, **ALWAYS** read and follow the pesticide label, it is the law! The pesticide label will provide you with the necessary information to determine the appropriate nozzle selection and spray volume, thus allowing you to attain the maximum performance of a control product, saving you time, effort, and money.

A Brave New Year

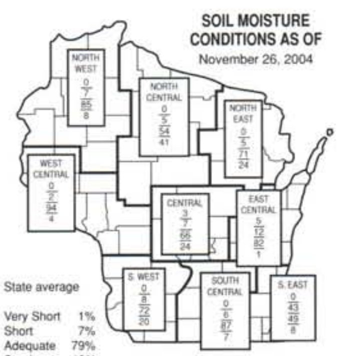
By Monroe S. Miller, *Golf Course Superintendent, Blackhawk Country Club*

You would think Wisconsin golf course superintendents would be basking in serenity these days - the slow paced and normal days of winter. I guess we mostly were doing that, to some extent anyway, until the 2005 Wisconsin Turfgrass EXPO on January 11 and 12. The heavy rain that fell in southern Wisconsin those days spoiled the pleasant mood I was in.

In our town, the one inch-plus of rain dampened the prospect many of us had felt that maybe, just maybe, the golf turf we are responsible for was going to get through another winter season with no more than normal damage. Now we are not so sure. Even Bob Vavrek wouldn't predict how the water and slush that turned to ice when the temperatures plummeted to -15 degrees F. two days after that would affect golf turf. Many golf courses look like ice-skating rinks now. And in my career, ice has damaged more turf than anything else during the dormant winter months.

Right around the 15th of January, the average daily high temperature started to rise. And once you get that going, you cannot stop it! I have discovered that with the longer days, the higher sun and the slowly rising temperatures comes a renewal and optimism that leads us all to believe, with all sincerity, this will be our best year ever.

Graphic summaries of the 2004 weather and growing season, as prepared by the great Wisconsin Agricultural Statistics Service, are presented below and on page 39 for your edification. Makes you wonder what the same graphs and tables will look like for this Year 2005.



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The new *Encyclopedia of Entomology,* edited by John K. Capenera, is now available and Wisconsin's Dr. R. Chris Williamson is one of the authors. If you want to read what Chris wrote about the biology and management of turfgrass insects of the U.S., see Vol. 3, P - Z, pp. 2372 - 2402.

Congratulations are in order; it was a high honor to be chosen to write the section on turf insects.

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The National Climatic Data Center puts out seasonal outlooks to 13 months in advance, but you cannot put a lot of faith in these outlooks (at least in my opinion). That notwithstanding, a mild El Nino is expected to persist through much of the upcoming year, possibly lasting into next winter. This should lead to below normal precipitation for the early portion of 2005, with above normal temperatures being a little better possibility as we move into winter of 2005 - 2006. But who knows…

Maybe a better predictor would be the lilacs. A research at the University of Wisconsin - Milwaukee

MONTHLY TEMPERATURES: 2004 GROWING SEASON AND NORMAL*

District	April 1/		May 1/		June 1/		July 1/		August 1/		September 1/	
	2004	Normal	2004	Normal	2004	Normal	2004	Normal	2004	Normal	2004	Normal
	Degrees Fahrenheit											
NW	42.0	41.7	50.1	54.4	59.5	63.1	65.5	68.1	59.9	65.9	62.5	56.6
NC	40.8	40.4	49.4	53.2	59.3	61.8	64.9	66.4	59.2	64.2	62.2	55.3
NE	42.4	41.3	50.4	53.6	59.9	62.5	64.6	67.0	60.5	64.8	62.0	56.0
WC	47.1	45.2	55.0	57.4	63.4	66.4	68.6	70.8	63.6	68.3	64.7	59.3
C	45.9	44.5	54.1	56.7	63.2	65.8	67.9	70.2	62.7	67.7	64.1	59.0
EC	44.5	42.8	51.7	54.6	61.6	64.1	66.9	69.5	63.6	67.9	64.7	59.8
SW	47.9	46.1	57.2	57.9	64.9	67.2	68.7	71.4	64.3	69.0	64.5	60.5
SC	47.8	45.8	57.1	57.8	65.2	67.2	69.2	71.3	64.9	68.9	64.9	60.6
SE	47.3	45.0	54.9	56.3	63.6	66.0	68.6	71.2	65.0	69.4	65.3	61.4
STATE	44.4	43.2	52.7	55.5	61.8	64.5	66.8	69.1	62.0	66.9	63.5	58.1

1/Preliminary estimates, 2004. * Normal is defined as the 30-year average for the years 1971-2000. Source: State Climatologist.

MONTHLY RAINFALL: 2004 GROWING SEASON AND NORMAL*

District	April 1/		May 1/		June 1/		July 1/		August 1/		September 1/	
	2004	Normal	2004	Normal	2004	Normal	2004	Normal	2004	Normal	2004	Normal
	Inches											
NW	2.63	2.39	5.33	3.29	2.54	4.19	4.05	4.29	3.40	4.44	4.36	3.89
NC	2.72	2.40	5.06	3.31	3.50	4.01	2.49	4.06	3.13	4.36	2.86	4.03
NE	2.12	2.65	5.01	3.29	4.59	3.69	2.53	3.70	2.31	3.81	1.46	3.74
WC	1.85	3.05	9.18	3.69	5.47	4.24	4.48	4.45	3.19	4.54	4.14	3.82
C	1.54	3.02	8.85	3.52	6.72	3.88	2.82	4.13	3.47	4.22	1.22	3.72
EC	2.01	2.81	8.94	2.95	5.12	3.51	2.47	3.38	2.52	3.86	0.83	3.42
SW	1.68	3.55	11.66	3.60	5.76	4.35	4.18	4.33	3.81	4.46	0.80	3.42
SC	2.11	3.47	9.83	3.40	5.37	4.19	3.84	4.07	3.55	4.24	0.65	3.51
SE	2.15	3.48	10.54	3.13	5.13	3.76	2.54	3.82	3.63	4.22	0.47	3.48
STATE	2.17	2.86	7.64	3.37	4.61	4.02	3.33	4.07	3.20	4.27	2.29	3.74

1/Preliminary estimates, 2004. * Normal is defined as the 30-year average for the years 1971-2000. Source: State Climatologist.

COMPARATIVE TEMPERATURE AND PRECIPITATION DATA

District	Average Temperature June - September						Total Precipitation April - September					
	Normal*	2000	2001	2002	2003	2004 1/	Normal*	2000	2001	2002	2003	2004 1/
	Degrees Fahrenheit						Inches					
NW	63.6	61.6	64.6	65.8	64.3	62.2	22.3	21.5	25.6	28.6	20.3	24.7
NC	62.3	61.3	63.5	65.2	63.6	61.8	22.1	24.1	24.0	28.0	19.9	18.6
NE	63.0	61.6	63.6	65.3	63.6	62.0	20.9	23.0	21.3	26.9	21.3	18.6
WC	66.7	64.9	67.2	68.8	67.3	65.4	23.5	25.4	27.6	29.3	18.6	27.4
C	66.1	64.7	66.6	68.4	66.4	64.7	22.3	27.1	25.8	24.0	19.5	25.9
EC	66.0	64.7	66.7	68.3	65.8	64.6	20.0	24.5	22.4	20.1	20.3	21.6
SW	67.5	66.0	67.4	69.4	67.8	66.0	23.5	30.6	28.7	24.0	19.4	29.1
SC	67.6	66.5	67.8	70.0	67.8	66.1	22.7	30.6	27.6	20.6	19.0	25.8
SE	67.6	66.6	68.0	70.0	67.4	66.1	22.0	31.8	25.5	21.7	17.9	25.1
STATE	65.1	63.6	65.7	67.4	65.6	63.8	22.2	25.6	25.3	25.8	19.7	23.7

1/Preliminary estimates, 2004. * Normal is defined as the 30-year average for the years 1971-2000. Source: State Climatologist.

and Cornell University scientists have found that lilacs are blooming about four days earlier than the did in 1965. David Wolfe, a plant ecology professor at Cornell, says nature's calendar is changing due to an increase in greenhouse gases. "It's not just the weather data telling us there is a warming trend going on. We are now seeing the living world responding to the climate change as well," Wolfe said.

The Cornell study is consistent with other examinations involving the biological impact of rising temperatures, but these studies have been much more limited in geographic scope. Mark Schwartz, the UW - Milwaukee investigator, studied "phenological" events, the study of how living organisms respond to seasonal and climatic changes to their environment, and discovered that certain lilac species green up five to six days earlier across North America in a 35-year period from 1959 to 1993. Schwartz thinks what we are seeing in this period is related to warmer spring temperatures.

Early in 2004, Harvard University scientists also reported finding evidence of earlier blooming in specimens at the famed Arnold Arboretum in Boston, while botanists at the Smithsonian Institution in Washington, D.C. found the city's famous Japanese cherry trees are blooming about a week earlier than they were 30 years ago. The Northeast Regional Climate Center at Cornell reports that the average annual temperature in the Northeast has increased by 1.8 degrees F. since 1900, which is slightly higher than the global average of 1.1 degrees F. The greatest rate of warming has occurred during the winter months (December through February) with an average increase of almost 3 degrees F. over the past 100 years — a rate that has accelerated over the past 30 years to 4.4 degrees F.

The Cornell researchers analyzed data from 72 locations in the northeast. Genetically identical lilacs were planted during the 1960s and 1970s as part of a joint USDA-funded project involving Cornell and the University of Vermont. The lilacs were planted to help farmers predict plant and harvest dates, but have now provided a historical record of blooming dates.

The Cornell study also included apples and grapes at four sites in New York. They were blooming six to eight days earlier than in 1965.

The earlier spring data may in fact excite many golf players since it indicates earlier spring seasons and earlier golf course openings. But the change could encourage invasive species, adversely affect pollina-