



THE GRASS ROOTS

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DROUGHT GRIP LOOSENS

By Monroe S. Miller

One might have guessed, way back on April 26, that we were going to have some kind of abnormal year in 1988. On that Wednesday, on the way to work, the Madison radio stations were playing Christmas music. We woke up to snow blowing across the streets and across the golf courses. The world was white. All of the golf courses in the city were closed for the day. Some residents even made jokes about heading back to Florida for another month. Yet by Sunday, the temperature reached a high of 82°! Those few days of extremes should have given evidence to a bad weather moon on the rise for 1988.

Many golf courses opened their 1988 season early again, continuing a trend of recent years of a late March start in much of Wisconsin. Few paid attention to the lack of rainfall early in the season, except to remark how great it was to be able to get so much work done ahead of schedule. By Mother's Day, irrigation systems had put out a lot of water for that time of year and we were to learn later that the rain that fell over much of the state that weekend would be the last for quite a while.

As reports from weather stations for May started coming together early in June, the severity of the problem became more clear. The statistics compiled by state climatologist Douglas Clark emphasized what Wisconsin's Golf Course Superintendents already knew — we were on our way to near record drought in some areas of the state. The May average for all of Wisconsin was 1.36", only 38% of the normal 3.55". This statewide average was

the third lowest on record and the lowest since 1925.

Mid-June was the time the whole world seemed to become aware of the seriousness of the drought. Every night on the television news and every day in the newspapers there were stories about the weather. We learned also that we had lots of company; it was dry from Montana to Nashville and getting worse in nearly all locations. Theories started to appear about the causes — sun spot activity, the "creeping phenomenon", volcanoes, the jet stream, El Nino and moving averages. Despite the causes, the forecasts that were to become all too familiar started to appear: no relief in sight.

Golf courses were suffering, but no worse than were farms. Most of them do not have our advantage of irrigation and were strictly at the mercy of Mother Nature. People began to wonder about the economic effects of the lack of rainfall. A burning ban went into effect. On June 17 in Madison, the drought of 1988 was officially recorded the "worst ever" up to that date. The city went 35 consecutive days without precipitation, breaking a record set in the winter of 1939-1940. Many older people thought of the summers from 1934 through 1936 and compared this one to those. It really was getting bad all across Wisconsin, and throughout the nation as well.

The press focused more and more on the drought and its consequences as June dragged on. We read of the lack of mosquitos and the abundance of ladybugs. Leaf miners and grasshoppers became more prevalent. Pic-

tures of stranded barges on the Mississippi River drew attention to low water levels and brought suggestions of diverting Lake Michigan water. Our governor expressed his vehement opposition in no uncertain terms and along with other Great Lakes leaders was able to put that irresponsible notion to rest.

In our town, as the 40th day without rain passed, the Climate Analysis Center issued drought advisories. The USDA started planning for emergency relief and forecasters predicted more of the same kind of weather. Features appeared under the new heading of "The Drought of '88" and it somehow became more official. The lack of moisture was exacerbated by the extremely high temperatures day after day.

(Continued on Page 11)

TABLE OF CONTENTS

Drought Grip Loosens	1
President's Message	2
Editorial — Two Questions	3
Editorial — Budget	5
Jottings from the Golf Course Journal ..	7
WGCSA Monthly Meeting Roundup ...	9
Greenhouse Effect	11
The Computer Corner	12
Wisconsin Soils Report	15
The Sports Page	17
Quast Addresses Seminar	19
Golf Course Landscape Plants	21
Wisconsin Pathology Report	26
Letters	29
In Memoriam — Frank Musbach	31
NOER CENTER Major Donors	32
Casey Suit to be Appealed	35
Spreading the Breeze	36

Drought Grip Loosens (Continued from Front Page)

Record high temperatures across the state were becoming commonplace. Conversations this reporter had with turf equipment and supplies distributors indicated their sales of both machinery and pesticides were slow. Reports surfaced of Bull's Eye's problem, of golf courses digging deeper wells and irrigation equipment failures. They made it obvious this summer was going to be remembered for its misery for a long time.

The Fourth of July holiday tradition of fireworks was set aside, except for professionals launching displays from safe and designated areas. More and more we heard about the greenhouse effect and what it was doing to our climate. Rainfall remained sparse and spotty throughout the state, and few areas were prosperous. The jet stream, and thus our normal rainstorms, were moving up the west coast and into Canada, then down east of the Great Lakes. This left our area and the others in between dry and sunny and hot.

A tragic natural event like this one brings on not only a lot of theoretical explanations but many possible solutions as well. Some suggested cloud seeding. The clergy suggested prayer. Grass and forest fires started to crop up as environmental damage increased. Wind erosion of our soil in some places became serious. Water restrictions on Wisconsin citizens became commonplace. As July slowly moved on we read of unscrupulous traders profiting from the misery of farmers through crop speculation. Advice on health was available everywhere — wear loose-fitting clothes, drink plenty of liquids, avoid too much direct exposure to the sun, get plenty of rest, etc. Health officials became more and more concerned about the stress factor in the lives of those directly affected by drought. That concern most certainly included Golf Course Superintendents and their employees. And still, long range forecasts offered no relief in sight.

Discussions began in July over the question of whether this was just an agricultural drought or a meteorological drought. Obviously, a meteorological drought is much more serious and results in the lowering of water tables, streams and rivers and reservoirs. Some believed we are staring a meteorological drought in the face. Although a few rain showers fell around the state, it was a record-breaking month for

heat. In Madison — I've not had enough time to track anywhere else — 14 of July's 31 days had a high temperature of over 90. And the precipitation was well below normal for the month.

As this is written in early August, the weather changes normally associated with this time of year are becoming visible. Some parts of the state are experiencing a little rain. There are some areas that are now actually back to normal because of heavy rain. Even

though this isn't true for my place of work, there still is a sense that maybe the worst is over. The brutal heat remains; however, the calendar tells me that soon this will be moderate, too.

The final chapter for 1988 is yet to be acted out. We will recover from this year, no doubt. The nagging question, the one that should worry everyone, is whether or not the weather of this year portends of long term adverse summers. But we must wait on that answer, too.

Is The Greenhouse Effect Here?

By Michael Semler

Palm trees may be coming to the Midwest. No, I am not talking about a new breed of palm trees; I am talking about actual desert conditions taking over the nation's mid-section, our precious corn and wheat belts.

As the drought of 1988 continues and daily temperatures in the 90's become the norm rather than just heat waves, there seem to be ominous signs of what may come in the near future.

What we are experiencing now may be due in part to the Greenhouse Effect, a process by which man-made and natural gases trap solar heat in the earth's atmosphere causing a global warming. The effect will be felt worldwide, not just here in the Midwest.

The greenhouse effect is, in some scientists' minds, only a theory. However, many scientists are convinced its effects are inevitable in the near future.

In its simplest form, the theory states that as carbon dioxide and many other gases in the earth's atmosphere are increased, these gases will change the earth's climate. Like panes of glass in a greenhouse, CO₂ allows most solar radiation to enter the atmosphere, but inhibits infrared rays reradiated by land and bodies of water from escaping into space. As the CO₂ accumulates, enough heat may be trapped to gradually warm the atmosphere.

If these greenhouse gases continue to increase at the current rate, the earth's mean temperature could rise 2°F to 7°F by the next century. That would make global temperatures warmer than at any time during the past 100,000 years. Global rainfall patterns could shift, bringing heavy rains to previously arid regions and drought to productive farmlands in the Midwest.

Since the Industrial Revolution, increased production of CO₂ and other gases, such as nitrous oxide, from the burning of fossil fuels has made the shroud of greenhouse gases even

denser. This denser shroud captures more of the earth's excess heat, causing a gradual warming. Some scientists contend that this gradual warming can be seen in the last century where worldwide temperatures have risen by 1.2°F, compared with a natural variation of only 0.4°F. They believe this warming has been sufficient enough to warrant it as a harbinger of the greenhouse effect.

Other scientists note that global temperatures and climates move in broad historical patterns of warming and cooling that last tens of thousands of years. Astronomical cycles, volcanoes, the interplays of deserts, oceans and cloud cover can effect the density of the greenhouse cover. Thus, they believe there is insufficient evidence to specifically label the greenhouse effect as the culprit of this current warming.

Whether the greenhouse effect is here or not, these scientists calculate that global temperatures could rise between 3°F and 9°F by the year 2050. If that happens, we can expect hotter, drier summers with eventual glacier and polar ice cap melting, and a subsequent rise in the sea level by several feet. By then, increased CO₂ production and widespread deforestation will cause an increasing role in the atmospheric heat-up.

James Hansen, an atmospheric scientist who heads NASA's Goddard Institute, testifying before a congressional committee said, "It's time to stop waffling and say that the evidence is pretty strong that the greenhouse effect is here." Even scientists who believe his testimony is premature hope it will stir up some worldwide support to start conserving energy and cut back on the use of fossil fuels. The alternative, nuclear power, may be less pleasant to many, but is the only capable replacement for fossil fuel power plants and thus, preventing the onslaught of the greenhouse effect.