

Future Shock - Are You Preparing for 1984?

JOHN R. HALL, III

It is important that those of us who derive our livelihood from the turfgrass industry develop a strong understanding of how this industry might be influenced by future problems in the area of energy, food and fertilizer. Golf course superintendents should develop a particularly strong sense of perspective, realizing their importance in the historical development of the modern turfgrass industry in the United States. In these times of rapid change, one needs to be constantly aware of how the turfgrass industry could be influenced by shortages of energy, food and fertilizer.

In order for a superintendent to develop a sense of perspective, it is necessary that he be aware of his important role in the historical development of the turfgrass industry. References to turfgrass are present in Biblical literature as well as some of the earlier references to the turf gardens present in the palace of the Chinese emperor Wu-Ti in 157 B.C. Later in the British history of the 1300's, statements are made referring to "bowling on the green". In 1665, J. Rea was recorded as being the first seller of sod. Golf and the turf industry, as we know it today, was given its start with the formation of the Royal and Ancient Golf Club of St.

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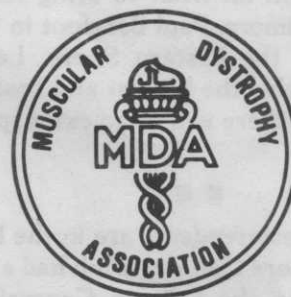
Andrews in 1754. A milestone in the development of the turf industry was marked by the request for a patent on a reel-type mower designed by Edwin Budding in 1830. By 1880, turfgrass variety trials had been developed by W. J. Beal at the Michigan Agricultural Experiment Station. In 1886, the first Agricultural Experiment Station turf research was initiated at the University of Connecticut. Theodore Havemeyer was elected the first president of the U.S. Golf Association in 1894. In 1901, the first Federal funds in the amount of \$17,000 were granted to several states with established turfgrass research programs "for turfing lawns and pleasure grounds". In 1916, C. V. Piper and R. E. Oakley initiated the Arlington Turf Gardens which were located at the site of the present Pentagon. In 1927, Mr. O. J. Noer began the publication of *Golfdom* magazine, now known as *Golf Business*. In 1928, the National Association of Greenskeepers was formed. This organization, now called the Golf Course Superintendents Association of America boasts a membership of over 4,000.

In the late 20's and early 30's, the art of greenskeeping was recorded in publications, as greenskeepers began to destroy the connotation of greenskeepers as simply "grass farmers". During the early 30's the writings of such notables as Edward Dearie of Ridgemoor Country Club and Matt Melville of Southmoor Country Club

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made great strides toward developing a professional attitude about greenskeepers.

There can be no doubt that the development of interest in the game of golf has been a prime driving force for the development of the turfgrass industry in the U.S. The period of most rapid increase in the number of golf courses in the United States occurred between 1960 and 1965. At this time, the annual rate of golf course growth has decreased considerably to the point where between 1970 and 1975 only 236 golf courses per year were under construction. Another disturbing observation that could have negative impact on the turfgrass industry in the future is the noted projection by A. C. Nielson Company that the number of golfers decreased 3% between the years of 1973 and 1976.

The game of golf and the people associated with the game of golf have provided leadership for the development of the turfgrass industry that exists today. Quality turf has been indelibly planted in the minds of American people by the early "greenskeepers" of America. The golf industry has undoubtedly been one of the prime driving forces in the development of the green industry of today, in fact, many refer to the turfgrass industry as being the core and driving force for today's "Green Industry". It is important that golf course superintendents be aware of where the turfgrass industry is today, where it is going tomorrow and how the turfgrass industry might be influenced by energy, food and fertilizer availability.

The Middle East oil embargo of 1973-74 made us immediately aware of the importance of oil to the economic well-being of the United States. Rapid fluctuations in oil prices have had a ripple wave effect on prices throughout the economy. Material prices rose 159% in a period from 1971 to 1974. This was the largest rate of increase in material prices in 150 years of recorded economic history. Recently published figures on mineral depletion rates of several imported minerals leads one to surmise that the natural resources, which have so long supported our economy and high standard of living, are of limited availability. The United States imports approximately 22 metals and with 7 of these the

amount imported represents more than 50% of the total used in the United States.

The world energy requirement is almost directly correlated with the rapid increase in the world's population. In 1973, it was estimated that the world population was approximately 3.86 billion. Estimates of world population experts indicate that we may approach 16 billion people on the face of the earth by the year 2135 at our current growth rate.

The United States has developed a high energy-intensive economy. In 1973, the U.S. population represented 6% of the world's population and was utilizing approximately 33% of the energy made available for the world. Our rapid economic growth and high standard of living has been supported by this energy-intensive economic system. Our rate of growth and the development of our high standard of living have never been seriously hampered by energy conservation programs. Except in the time of war, energy conservation has seldom been requested of the American people.

Analyzing the energy efficiency of various nations by determining their ability to generate Gross National Product (GNP) per unit of energy utilized, it becomes immediately obvious that the United States is relatively inefficient, utilizing approximately 18 Milowatt hours of energy for each \$1,000 worth of GNP generated. Countries such as Switzerland and Sweden were considerably more efficient in generating GNP with

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their available energy resources. Switzerland and Sweden required approximately 6 and 10 Milowatt hours, respectively, to generate \$1,000 of GNP.

Our current energy use patterns are not in proportion to the reserves of fossil energy resources available. For instance, natural gas currently represents about 3% of our recoverable fossil fuel reserve, and yet today, 33% of the total fossil fuel used in the United States is natural gas. This portends of future shortages in natural gas availability. Domestic oil production in 1973 represented less than 60% of our consumption and Arab countries provided 26% of our imported oil. This dependency on Middle East oil is likely to increase as we move into the 1980's. In 1970, the United States was importing 400,000 metric barrels of oil/day from the Middle East, and by 1980 this is predicted to increase to 6 million metric barrels/day. This most promising energy source of the immediate future appears to be the fission breeder reactor, but this system is meeting several environmental blocks. In 1975, no less than 20 state legislatures passed bills to restrict or prohibit development of nuclear power. The obvious long-term energy source is solar energy, but it will not be developed until it is economically competitive with existing energy sources. It is inevitable that there will be periodic lags in energy availability as technology speeds to keep up with population.