Computer Communications

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During the past year, Toro and RainBird Irrigation have announced new computerized irrigation control systems utilizing an IBM PC computer. These computerized systems offer greater control and ease of use over previously designed irrigation systems. If you read through the clever advertisements, you will notice that neither system is no longer solely dedicated to the task of irrigation controlling. With these systems, a personal computer is now available for other tasks.

With most other equipment used for turfgrass management, if it accomplishes a single task efficiently, one is well satisfied. A mower that cuts greens is not expected to mow roughs, fairways, or football fields. Many sites now have spraying equipment for pesticide application for use on a specific type of turf (fairway mist blowers, etc.). A personal computer, however, is unique in this regard in that it can be used for many tasks; versatile enough to handle diverse needs and still available for its major function (irrigation control).

The next greatest activity to utilize a personal computer lies in the business management of a turf site. Personnal record-keeping, supply inventories, budgeting, and a wide variety of other accounting and record-keeping can be accomplished in a shorter time span while providing greater information than manual based systems. Currently, several firms are writing and producing software to meet those needs and there are a few software package available for immediate use.

However, it must be pointed out that software is not available for the science or art of growing grass. Several programs, which are committed to the production of superior turf are being developed. The University of Illinois is presently developing an Expert Systems for turf management to provide timely advice and decision support for turf managers and should be completed over the next several years.

Another area of potential use for computers has been developed and offers immediate help. Computer communication, or the ability to access data, information, and messages over telephone lines, has already been built to a high level of sophistication. The following categories are examples of communication tools that are immediately available to turfgrass managers.

Current Weather Data

Recently, a computerized weather data bank, called Climate Assistance Service (CLASS), was installed at the University of Illinois by the Illinois State Water Survey and the Illinois State Natural History Survey. This data base contains historical weather data from over 65 weather stations throughout Illinois and surrounding states. Weather data is generally current up to the previous 24 hours. Information is available on minimum and maximum air temperatures, soil temperatures, precipitation, soil moisture, and the soil moisture index. Six-, ten-, and thirty-day forecasts are also listed. Weather data can be viewed for either one location or summarized for the entire state.

This system can be accessed with either a terminal or microcomputer via a wats line (800) 252-7307 from 9 a.m. to 5 p.m. daily. For communications settings, baud rates of 300 or 1200 are acceptible. The CLASS computer will automatically interpret the incoming baud rate and change to the appropriate rate. Use seven data bits, one stop bit, and set the terminal or microcomputer for full duplex.

Dialog Information Services, Inc.

The Dialog Information Services provide instant access to more than 80 million references to journals, newspaper articles, conference papers, and reports in over 200 data bases covering all areas of science, business, medicine, social science, current affairs, and humanities. In addition, an online national "yellow pages" is available. Through the use of simple commands, one can access information on any subject desired. I have successfully used the system to locate references for thatch control and turfgrass fertilization. With experience, searching becomes relatively easy There is no monthly service charge or initiation fee for use of the Dialog system. The user is charged for each search that is made. While some searches can be expensive, planning before linking with the system can minimize costs. A subset of the Dialog Information Services, called Knowledge Index, is available at a less expensive rate. For more information on Dialog or Knowledge Index, call the toll free number (800) 227-1927.

Compuserve and The Source

Two similar yet slightly different services are available from Compuserve and The Source. Each service offers a much smaller library of information than Dialog Information Services but offer various other services. These services range from direct assess to UPI news information and stock market quotes to a CB simulation for direct conversation with individuals on different computers. Additionally, both systems also allow the storage of information on the system and access to many valuable programs and useful services. Oh yes, games are available on each service as well. For more information, call (800) 848-8199 for Compuserve and (703) 734-7500 for the Source.

Bulletin Board Services (BBS)

Many personal computer owners have opened up their machines to access from other computers throughout the country. These systems allow the transfer of messages, files of information, and programs both to and from the called personal computer. These systems are called Bulletin Board Services or BBS for short. They are often run at the systems operator's (SYSOP) expense, and many systems are available 24 hours a day. Generally, the callers only expense is the toll charge for long distance telephone connections. While most BBS are computer related, many are dedicated to specific topics such as hobbies, sports, dating, or occupations. Listed here are several generally purpose IBM PC BBS which, in many cases, lists the numbers of additional BBS.

Online Computer Telephone Directory BBS Information Exchange

Phone (913) 649-1207, Kansas City, MO. 300/1200 baud, no parity, eight data bits, one stop bit. SYSOP: Jim Cambron.

PC Users Group Information

Phone (301) 949-8848, Rockville, MD. 300/1200 baud, no parity, eight data bits, one stop bit. SYSOP: Rich Schinnell.

IBM PC Information Exchange (usually very busy)

Phone (312) 882-4227, Chicago, IL. 300/1200 baud, no parity, eight data bits, one stop bit. SYSOP: Gene Platz.

New terminology is evident throughout the descriptions of communication systems available for the computer. Data bits, stops bits, parity, and baud rate are probably foreign to your vocabulary. These all represent various communications settings for your computer system that need to be set, or adjusted,

(Computer cont'd.)

to contact these external computers. Baud rate is a measure of the speed at which data is transferred through the telephone. For most intensive purposes, 10 baud units are equal to a single character, such as a letter of the alphabet or a number per second. A rate of 300 baud, therefore, means the transfer of 30 characters per second. Likewise, 1200 baud sends 120 characters per second. Not all information sent across the telephone line are data. Each piece of information, called a bit, will either represent data or some kind of a control mechanism to tell the receiving computer how to interpret the stream of information being sent down the line. Each character consists of one stop bit, and a stream of seven to eight data bits followed by one or two stop bits. Generally, these settings are all one needs to know to implement correct communication settings for outside computer communication. Several other factors, i.e., turn around time, and hand-shaking protocol can also come in to play. These will be explained in greater detail at the 1984 NCTE Workshop on Computer Communications on December 11.

As previously mentioned, the appropriate program or software is necessary to handle conversion of information from one computer to a form which can be transferred across telephone lines and then converted into useful information on the receiving end. This communication software comes in various forms and can range in cost from several hundred dollars to availability at no charge. My recommendation for first time communications is to obtain a copy of PC-Talk III which is available at no cost from any computer use group or BBS. This software runs only on the IBM PC. Should you be unable to locate a copy locally, it can be ordered, at a cost of $35, from the Headland Press, Inc., P. O. Box 862, Tiburon, CA 94920; telephone (415) 435-9775.

In addition to the appropriate communications software, several pieces of hardware are also required. Information is normally transferred internally within the computer, in groups of eight to 64 bits at a time. However, for external communication, these groups need to be broken up into individual bits. This is done through an asynchronous card or port. Check with a local computer store for details on the appropriate card for your machine.

In addition to the card, an instrument called a modem which stands for modulation-demodulation is required to convert the stream of dtat bits into the appropriate telephone signal for transport down the line to the receiving computer. On the receiving end, a modem must also be connected to the telephone to reassemble the stream of signals into the appropriate data bits. Modems, like many instruments for connection to a computer, come in various sizes, shapes, and have many different features. Basically, they sit either outside of the computer attached up to the telephone or fit within the computer and require the telephone cord be plugged into a socket in the back of the system.

The advantages of the external modem are in its portability from one computer to another and, more importantly, a series of lights which indicate the status of the connection and processing of the signal across the telephone. The disadvantage to the external modem, which is an advantage to the internal type, is the compactness and savings of desk top space. As well, iternal modems generally incorporate an asynchronous port on the same card. Thus, the amount of necessary equipment is minimized.

The Present and Future of Turfgrass Varieties[1]
by Dr. William A. Meyer[2]

There has been a tremendous increase in cool season turfgrass breeding in the United States in the past twelve years. The major increase has been in the number of private companies as a result of the passage of the U.S. Plant Variety Protection Act of 1971. This Act allows the breeder and owner of a newly developed variety to obtain exclusive U.S. production and marketing rights. Other individuals cannot produce or market a protected variety without the permission of the owner. Many improved varieties of Kentucky bluegrass, perennial ryegrass, tall fescue and fine fescue are now on the market as a result of the many breeding programs.

National Turfgrass Evaluation Program

In 1982, Jack Murray, a turfgrass specialist of the USDA, Beltsville, MD, initiated the development of the National Turfgrass Evaluation Program (NTEP). This program will develop and coordinate uniform evaluation of turfgrass varieites and blends for the U.S.

This program will be a self-supporting, non-profit program sponsored by the Beltsville Agricultural Research Center and the Maryland Turfgrass Council. It is not a federal program. A policy committee made up of members from the different regions of the U.S. will administer the trials.

Each year the NTEP will send out different turfgrass species to be planted in uniform trials throughout the U.S. The owner pays a fee to cover the distribution costs of the seed, and the accumulation and analysis of the data. The yearly summaries from each test will be available upon request.

The NTEP has already released the first 2 years of data from the 1980 Kentucky bluegrass trials that included eighty-four varieties. In 1982 a perennial ryegrass trial with forty-seven varieties was distributed for trials. The 1982 NTEP trials included thirty tall fescue varieties, and forty-seven fine fescue varieties. The NTEP program will provide excellent information to the turfgrass industry as to which varieties are widely adapted to the diverse environments of the U.S.

Kentucky Bluegrasses

Many new improved varieties of Kentucky bluegrass have been developed and released in the U.S. during the past 10 to 12 years. There appears to be a reduced interest in bluegrass breeding and variety release at the present time in favor of other species such as ryegrass and fescue.

Leaf spot, caused primarily by **Helminthosporium vagans** in the Northwest, can severely damage common type varieties (characterized by narrow leaves and erect growth habit) such as Park, Kenblue, Bayside, Geary and Delta. The varieties A-34, Adelphi, America, Bonnieblue, Challenger, Columbia, Fylking, Majestic, Midnight and Sydsport are examples of new lower growing turf-types with improved resistance to leaf spot. The turf-type varieties Baron, Glade, Merit, Ram I and Victa would be considered as having intermediate resistance. Leaf spot is especially serious in poorly drained **areas**, and in shady areas.

Stripe rust, caused by **Puccinia striformis**, is the other serious disease of Kentucky bluegrass in the Northwest. The improved varieties Shasta, America and Mona have shown good resistance, followed closely by Bristol, Columbia, Geronimo, Majestic, Challenger, Sydsport and Trenton. This disease is