News *from page 7*

Information on next year's show, scheduled for Jan. 15-17, can be obtained from: Mid-Am, 4300-L Avenue, Rolling Meadows, IL 60008, 312/359-8160.

PEOPLE

Oscar Jacobsen dies; built mower empire

Oscar T. Jacobsen, co-founder and former president and chairman of the board of the company that manufactured and marketed the first power mower with an internal combustion engine, died February 1.

Jacobsen, 85, along with his father, Knud, co-founded the Jacobsen Manufacturing Company (now Jacobsen Division of Textron Inc.) in 1920 in Racine, WI. While initially testing the company's first product, the 4-Acre Power Mower, Mr. Jacobsen developed its first distribution network. He is also credited with developing the first power greens mower in 1924.

Mr. Jacobsen became vice president in 1930, and one year later pioneered development of the automatic recoil starter and the use of rubber tires on lawn mowers. In 1938, he was named president and general manager, and introduced the Lawn Queen, Jacobsen's first power lawn mower for homeowners. He became chairman of the board in 1958, a position he retained until 1969 when the company was acquired by Allegheny-Ludlum.

GOLF DESIGN

Designer expects courses like old days

Joseph Finger, a golf course architect, predicts that unless something is done soon to bring down the cost of golf course construction, "Golf will revert to the rich man's game it was 75 years ago."

Speaking at the Southwest Turfgrass Association and New Mexico State University, Finger told participants that the golf course with "wall to wall greens" is too expensive to build and maintain and uses up precious natural resources. Golf course designing, he said, is one third golf, one third engineering, and one third agronomy.

Construction and labor costs are escalating right along with interest rates and taxes. A natural rough which uses low growing natural grasses is one way to save money and add character to a course, Finger said. A natural rough with intensively maintained greens, tees, and fairway landings also could save on water use and pumping cost.

Low maintenance natural terrain also requires less herbicides, fungicides, and insecticides. Finger also suggested designers be choosey about site selection, keeping in mind the high cost of excavation. A good designer could cut down on the acreage needed for a

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GOVERNMENT UPDATE

Reagan proposes $600 million cut in EPA

The Reagan administration in across-the-board cuts has proposed to cut the 1982 Carter operating budget of $1.43 billion for the Environmental Protection Agency to $1.39 billion. Personnel levels have been cut from 10,621 to 10,387 in fiscal 1981 and are proposed for additional cuts in fiscal 1982.

Specifically in 1982, water pollution control will be cut $96 million; research and development related to environmental effects of energy development will be cut $34.8 million; plans for controlling solid wastes and reusing materials will be cut $12 million; the noise pollution program, $2.3 million, will be completely eliminated; and pesticide programs will be cut $7.6 million. Superfund money for hazardous waste dumps will be increased by $200 million in 1982 after an increase of $68 million this year.

Most of the pesticide program money would have been spent on efforts to establish registration standards and for integrated pest management, the latter being transferred to the Department of Agriculture. Additions include $1.9 million for RPAR contracts for risk-benefit assessments. Personnel levels will be reduced from 885 this year to 718 in 1982.

EPA decision clears registration of Sevin

The Environmental Protection Agency has decided not to issue a rebuttal presumption against registration (RPAR) for carbaryl (Sevin), a broad-spectrum pesticide used as an insecticide/acaricide and plant growth regulator.

After four years of study, the agency concluded that carbaryl should be returned to the registration process. However, the agency will require additional data from registrants to support existing registrations under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, and will negotiate appropriate label changes, outside the RPAR process, to ensure that exposure to carbaryl is held to reasonable levels.

The pesticide is registered by the EPA for control of more than 545 different pests on 100 uses, including home and garden, fruit and forage, forest and rangeland, field and vegetable crops. The active ingredient, Sevin carbaryl insecticide, is manufactured by Union Carbide and is formulated by nearly 300 U.S. firms for use in 1,500 federally registered products.

Insects' covering may control life cycle

Scientists in Kansas and North Dakota will study ways to curtail the formation of insects' tough outer covering as a possible new biochemical method of insect control.

Both studies involve chitin, the major component of insects' outer coverings, which is synthesized, maintained, and degraded to precise levels at specific times during an insect's life cycle. It is hoped that the research in the 20-month project will aid in developing new kinds of chemicals that interfere with chitin synthesis, according to entomologist Edwin Marks at the Metabolism and Radiation Research Laboratory, Fargo, ND.

The work will occur at North Dakota State University, Fargo, and Kansas State University, Manhattan, under cooperative agreements with the U.S. Department of Agriculture's Science and Education Administration.

ENTERING THE COMPUTER AGE: AVOID THE PANACEA APPROACH

New monthly feature to assist the landscape market with equipment purchase, rental, maintenance, and business management.

Dave Johnstone has more than 15 years experience in the construction equipment market. He has managed product introduction to the construction and rental equipment markets and has worked for a rental industry association. He has hands-on experience with nearly all types of outdoor equipment. If you have topics you would like Dave to address, you may write him at 267 Willow St., New Haven, CT 06511.

Now that microcomputer systems are available for as little as several thousand dollars and canned programs are offered for $30 and up, you may be tempted to experiment. Don't — unless you can tell from your own experience or the recommendations of your accountant and two outside management consultants that it will be a good idea. While computers are extremely useful where their unique abilities can be utilized, they are no panacea for every business. Sometimes, making a computer installation is like using an elephant gun to hunt mosquitos. And what's worse, if the computer installation is not tailored to your specific business or your business records are not tailored to the chosen computer installation, the computer can damage your operation.

It was only a handful of years ago that a computer salesman in southern California had to turn down three out of four of his hospital prospects, because the hospitals did not have the requisite underlying accounting system. If you've had the misfortune to have a hospital bill recently which you've studied before relaying to the insurer, you have seen for yourself that health care invoices are still a jumble with little relation to services provided. There are perhaps two reasons for this bookkeeping illiteracy: the skyrocketing demand for health care services and the origin of hospitals as charitable institutions. It probably does not afflict proprietary institutions.

Oddly enough, it took banks two or three generations of computers to get used to them, and, here and there, a bank official will still make a loan decision without consulting the computer printout under his elbow, with a disastrous result.

And plenty of other enterprises that should be using computers efficiently are not, even though they are staffed with programmers, data processors, information specialists, and experts in communications.

Computer is Certain To Change Your Business

The chief contribution of the computer (which is really only a high-speed adding machine) is its ability to provide information extremely rapidly.

This ability is responsible for a difference in degree so marked as to become a virtual difference in kind. The data produced by a computer is no more comparable to the data generated by slower methods than time-lapse photography or X-ray photography is comparable to the usual snapshot.

People who have had experience with computers say that the new information supplied gives an entirely different picture of business strengths and weaknesses than they had imagined. The new information may prove to you that a given activity is making no contribution to profit or a very little contribution to profit or that the expense of serving a specific account does not justify handling it. It may underscore the fact that to protect profits full-time people had best be replaced by part-time people. Or it may tell you (if your business is in the snowbelt) that a winter vacation had best be replaced by seasonal diversification. Or that the time has come to unload some seemingly good equipment.

The computer information will point up as no other information can inefficiencies and inadequacies and time squandering and poor money management and failure to develop markets. If you have an analytical turn of mind, great. If you don't and it happens that you don't care for business administration, the frankness of computer printouts can be frightening, uncomfortable, shocking. When a computer is installed, there's inevitably a feeling that control has been lost to an infernal machine. In the first months, you and your office staff are likely to rebel. To utilize your computer, you'll have to make a conscious effort to digest the data — particularly at first.

Reports You'll Want From Your Computer

In the area of financial and operations control only, depending on the size and scope of your business, you will probably want weekly, monthly, quarterly, half-year, nine-month, and annual reports on the following (we figure you won't need daily reports for awhile, although sizable businesses require them):

Key Operating Ratios, which include the current ratio (current assets to current liabilities); acid test ratio (inventories are omitted); absolute liquidity ratio (receivables are omitted); receiva-

Continues on page 14

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Computer *from page 12*

bles turnover ratio (the rate at which cash is generated by the collection of receivables); and return on investment.

Receivables Aging Report By Customer: The trend here is to slap a finance charge on unpaid accounts after 60 days. People who have done this report a 35% improvement in collecting very old accounts.

Contribution to Profit of Any Equipment (which report will involve an ongoing rundown on equipment utilization piece by piece) and/or Any Specific Activity (which report will fold in labor and overhead, including absorbed service costs).

Cash Journal (which details receipts), Expense Journal (which details expenses), General Ledger.

Balance Sheet, otherwise known as Profit & Loss Statement (you may want to wait for the end of a normal reporting period, the month, for this one).

Customer Activity by Size of Transaction, Type of Transaction, Frequency of Transaction (this will let you know exactly where your business is coming from and will keep you from investing time and money in dead wood. If your business follows the general trend you are probably getting 80% of your volume from 20% of your customers and customers who have not dealt with you for two years have probably slipped away from you).

You may want more reports. You may be able to get by with less. Speak with your accountant and office staff.

The computer, as a device, is exceptionally good at forecasting based upon past experience into the future and at estimating the cost/benefits of management decisions. Use it at its highest level and not as an expensive substitute for a printing press, as with "personalized" letters.

Plan on Using Your Computer To Its Fullest

Whether or not you should get a computer will depend on the applications. If you are not going to use the computer in marketing and in plotting the direction your company should grow, then probably you can get by with:

a) Assigning specific computer tasks, such as General Ledger maintenance, or payroll, or promotional mailings, to outside specialists (you will probably turn to a specialist for promotional mailings, in any case).

b) An in-house office set-up limited to electronic calculators.

c) Manual computation.

If, however, you want to fine-tune your company's profitability, then by all means consider a computer *whatever your present volume.*

Software is Probably The Most Important Consideration

A couple of warnings drawn from the experience of others: The critical factor in getting ready to install a computer is not so much hardware as the accounting "bed" preparation. You may be certain that your computer will not make a measurable contribution to profitability for the one to two years you'll spend debugging programs. In general, the weakest link of a business installation is the speed of the hard-copy printer, which can be irritatingly slow. It is in the printer, too, that mechanical breakdowns are most likely.

Don't look on a computer as a permanent acquisition. You'll unplug and plug in new models as frequently as you buy your trucks. Perfect information delivery is an unattainable ideal, and your needs will change as your business develops.

Make sure your programmer or your business consultant allows sufficient information to be inserted in your customer records. This may mean that certain computers or certain canned programs will be inadequate.

Don't count on buying a canned program. Ownerships now are being questioned in civil suits. Your business is unique, and your programs must be written to your specific needs.

Recommended Approach

If you've decided on computerization, go gently, slowly, carefully: your business and the morale of your people are at stake. Be certain that someone on your staff takes a computer science course, so that there will always be an in-house authority. When the course is nearly finished, ask for at least two systems bids from management consultants who know hardware, software, programmers, and the questions to ask you. To familiarize yourself with the field, you might pick up one of the under $2,000 central processing units that use an ordinary television set for display and an ordinary cassette tape recorder to store the program. But don't count on such a set-up to make an operational contribution to your business.

At last count, there were 800,000 computers in the free world, doing the work of 6 trillion clerical people (or 1,500 times the number of people in existence). The computer is here to stay, and you'll probably need it for rifled marketing as well as for financial and operational management. The time may come when your computer can assist you in a technically agronomic way. There is no reason, for example, why you cannot record a customer's soil composition as well as his payment history. **WTT**

Advances in Turfgrass Pathology

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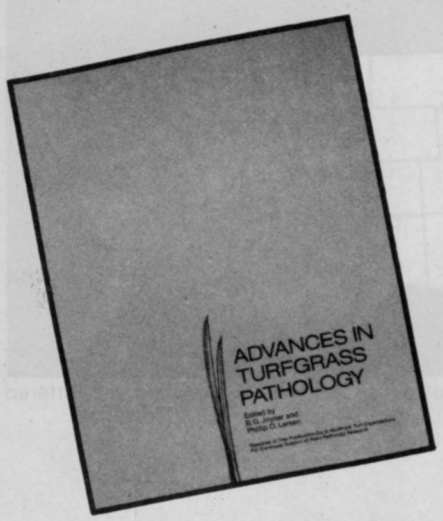

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WTT

SCIENTISTS FIGHT GYPSY MOTH SPREAD WITH INTENSIFIED ATTACK

By John Kerr, Associate Editor

"It is hard to describe if you haven't seen it," says Bill Rae, an arborist in the Boston Area. It defoliated 5.1 million acres of urban and rural forest in 1980. It will likely eat much more foliage in 1981 as it spreads south and west.

The gypsy moth, *Lymantria dispar*, the nation's number one shade tree insect, persists and thrives in the heavily infested Northeast. Scientists, diversifying their attack on the hungry insect, have stepped up their efforts as it multiplies. Arborists have attempted to use scientific research to counter one of the most challenging problems they have faced. Homeowners, in a state of entomophobia, are locking their windows and shuddering as caterpillars drop like hailstones on their rooftops.

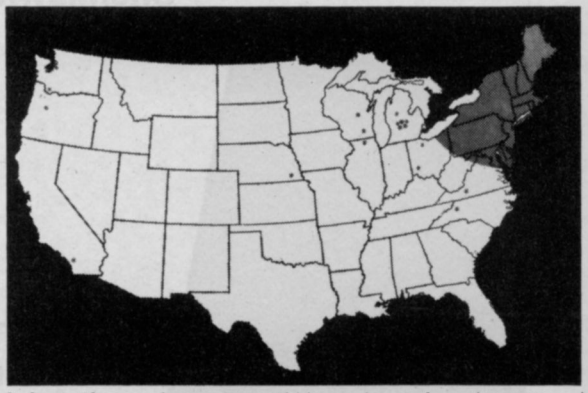
Rae has had to refuse orders since March. Other arborists are inundated with calls. "People will do anything to get rid of them," Rae says. "Even people who don't believe in spraying are now doing it."

Although professional arborists and the U.S. Forest Service have become extremely cautious from environmental pressures, the problem has become so severe that it has solidified forces against the insect. Since the beginning of this century, millions of dollars have been spent in efforts to control gypsy moth populations.

Early outbreaks occurred only in New England; today the insect threatens nearly half the states in the U.S. Excitement has reached a pitch because the gypsy moth, unlike agricultural pests that consumers seldom see, directly affects homeowners, campers, and nature lovers.

Traditionally, management of such a pest has been accomplished through pesticides. At a minimum of $5 an acre, the cost of spraying millions of acres questions its practicality. Charles Schwalbe, director of the Otis methods development center with the Animal and Plant Health Inspection Service (APHIS), thinks both cost and a feeling of helplessness contribute to negative reactions toward spraying. Schwalbe says, "I think that more people are beginning to feel that when the gypsy moth reaches these peak populations, the best action is inaction—let nature take its course."

More than cost and fear though, researchers and field applicators believe that pesticides can not do the complete job. A management approach integrating pesticides with biological agents and natural elements and predators pervades the minds of the leaders in the scientific and industrial communities. Integrated pest management (IPM) has become not only a popular concept, but a necessity.



Infestations of gypsy moth have been found scattered throughout the United States.

Man's role

More than any other insect problem, gypsy moth thrives under man's domain. Defoliation often occurs in populated areas, especially where homes and developments are located in previously forested land. Spruce budworm is an extremely bad problem in the northern U.S. and Canada; the Douglas fir tussock moth, found mainly in the western U.S., infests thousands of forest land acreage. But these two insects attack contiguous stands of conifers, mainly overmature trees.

The gypsy moth feeds on many types of trees, although it prefers oaks, and has a tremendous capacity to adapt to different regions. It has been found in Japan, China, Australia, and Europe. In the past year, infestations in the United States have been discovered in Washington, Oregon, California, Nebraska, Minnesota, Wisconsin, Indiana, Illinois, Michigan, Ohio, West Virginia, Virginia, and North Carolina. This spread southward and westward happens because of man's activities.

Campers, firewood, nursery stock, and anything else that moves or is moved from parts of the Northeast may contain gypsy moth. The federal government is trying to regulate this movement, but it is not an easy task. The state of Virginia inspects thousands of vehicles every summer. Officials try to inform Christmas tree growers and nurserymen that if their area becomes infested, it must be kept under quarantine.

All nursery stock in the Northeast is being closely watched for infestations of gypsy moth. APHIS monitors the stock being shipped and if any of it is infested, the owner is required to use some type of control program.

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The Minnesota Department of Agriculture last year prohibited importing trees supplied by three Connecticut nurseries after MDA officials confirmed that at least three shipments were heavily infested with gypsy moth egg masses. The prohibition remains until state and federal officials can certify their stock as disease and pest free. The Department's Division of Plant Industry has sent questionnaires to nurserymen and persons involved in government tree planting programs asking for the sources of tree stock planted in 1979 and 1980.

APHIS has used 75,000 to 100,000 traps a year to monitor gypsy moth populations in the Northeast. Campers and hikers have cooperated distributing the traps and picking them up at the end of the year. These programs have become particularly important to the states where populations have not reached outbreak proportions. Low levels of gypsy moth once detected can be localized and often eradicated. Homeowners can be warned to clean up yards, fences, and treehouses where the gypsy moth likes to rest during the day.

Egg mass hatching in the early spring shows the buff-colored larvae, which have rencently emerged, and the darker, older larvae.

At extremely high densities, (right) the gypsy moth caterpillars apparently do not use resting places at all until they are ready to pupate. Rather, they remain on the foliage, feeding continuously both day and night.

The professional arborist

Active pursuit by the National Arborist Association of a healthy and profitable IPM program is encouraging members and associates to expand their thinking. The high visibility of the industry to the public helps emphasize the importance of good planning and cultural practices. Much of these practices—monitoring, inspections, horticultural spray oils, *Bacillus thuringiensis (Bt)*, the use of parasites, predators, and resistant hosts—work in an attack against the gypsy moth. Many of these techniques, still in their infancy stages, must be refined and presented to the homeowners in an educated manner.

"Nothing is a complete, total panacea," says William Wallner, Forest Service project leader for the ecology and management of northeastern forest insect pests. "We must recognize all the alternatives. To expect a singular management approach to permanently solve such a complex problem as gypsy moth is naive."

The gypsy moth, because of its visibility, could not only promote IPM, but could help the arborist attain a position of extreme value. "It is a great opportunity for the professional arborist to assert himself in the public eye," says Erik Haupt, president of The Haupt Tree Co. in southwestern Massachusetts. High sell manufacturers will be advertising quick solutions to the problem. "They will be like the old medicine men," says Haupt, "selling a product if people need it."

Arborists agree that timing is a vital factor against the gypsy moth. Careful attention is being paid to egg mass hatching and proper time for treatment. This lets the arborist obtain maximum control with minimum treatment.

Haupt says some of his clients insist on biological control no matter how much he explains its limited effectiveness. This fact is another lesson to the arborist: you have to provide what the customer wants. Whether he's a property owner, golf course operator, or park superintendent, the customer desires and demands according to his own needs and wants. These desires are basis enough for an IPM program against the gypsy moth.

Since trees become more susceptible to disease and insect damage when they are weak, the arborist must keep them as healthy as possible before infestation occurs. Trees stressed with too little or too much water, frosts, leaf diseases, or herbicides are likely to suffer more drastically from gypsy moth defoliation than healthy, nonstressed trees. Unfortunately, even healthy trees can suffer from defoliation if enough of their leaves are removed in successive years.

The U.S. Department of Agriculture

Three USDA agencies—the Animal and Plant Health Inspection Service, Science and Education Administration (SEA), and Forest Service—coordinate federal-state efforts in regulatory, survey, control and eradication, research and development, and information and education programs.

APHIS, through its Plant Protection and Quarantine Programs, and state agencies from Maine to Maryland enforce regulations to prevent spread of the gypsy moth caused by people. In their regulatory work, APHIS and the states work closely with SEA, the Forest Service, and the Interior and Defense Departments. They also keep contact with such industrial organizations as the American Association of Nurserymen, Association of American Railroads, American Trucking Association, moving companies, airlines, the pulp and paper industry, the National Campers' and Hikers' Association, and other outdoor and travel groups.

Along with their work distributing thousands of traps, APHIS and the states conduct aerial surveys. These help identify the location and severity of defoliation and help predict where next year's damage will occur.

Control programs are designed to protect high-value recreation areas, forested communities, and timber resources from serious damage and spare homeowners the nuisance of crawling caterpillars in heavily infested areas. The Forest Service initiates control programs on federally-owned lands. On state and private lands, the Forest Service may participate but only at a state's request. Cost-benefit and biological evaluations must first be made and environmental effects of alternatives carefully considered.

Pheromones

The main method APHIS uses for trapping and monitoring the gypsy moth is sex pheromones. Pheromone traps have shown better success in low level infestations than in higher populations, where taking egg mass surveys can provide a better gauge. Spraying the gypsy moth pheromone, disparlure, into infested areas confuses the males who are seeking to mate with the non-flying females.

Excitement over the use of pheromones to control the gypsy moth problem has diminished in recent years. A leader in the research, Penn State University's Alan Cameron, has dropped his efforts after 10 years of study. "It is useful and valuable as bait for detection," Cameron says. "I'm satisfied we can't use it to reduce population in heavily infested areas." He bases his results on applications which are made to prevent mating after the damage has been done in a summer. If the application is effective, it would show lower populations the following year. This has not been proven.

Disparlure has been combined with biological agents, viruses, parasites, and chemicals and the gypsy moth has been eradicated. "I would not claim that the disparlure was responsible," says Cameron. "I also can't say it was not a part of the elimination."

Cameron thinks pheromones can be very useful as monitor tools, particularly in fruit orchards, to help get away from the calendar approach to spraying. In agriculture also, where a high dollar crop produces immediate returns on a spraying investment, an effective pheromone program could justify its cost.

The complexity of the gypsy moth's mating process leads Cameron to believe that other factors, such as visual and tactile senses, are involved. "There are too many factors to manipulate the population," he says. Even reducing the mating success 30 to 60 percent may not help when one egg mass may produce up to 1,100 eggs. "Their reproductive capacity is very high, particularly with new invading populations."

Cameron believes he knows disparlure's limitations. "The research was good in advancing the science, but frustrating because we are not much farther ahead than ten years ago."

Other ways of monitoring

When the gypsy moth hits its late third and early fourth instars (the male has five instars, the female six), it becomes active from its original

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JOHN DEERE
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