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The Square Fountain Garden shows that the quality of horticulture displays hasn't been reduced due to the IPM program.

## AN ALTERNATIVE

Integrated pest management is drawing raves from Longwood Gardens in Kennett Square, Pa., where some 350 acres are being effectively managed.

by Donald R. Buma, Longwood Gardens

Integrated pest management (IPM) is a current and often-discussed approach to controlling pests.

IPM is a program consisting of:

(1) closely monitoring plants and insects to determine their stage of development and pest severity;

(2) if necessary, implementing a correctly timed plan of action to control the pest with a biological or least-toxic chemical and;

(3) evaluating whether the desired results were achieved and readjusting the control plan if appropriate.

IPM has worked for several commercial landscape/arborist firms and has been used successfully with a number of agronomic crops.

Longwood Gardens in Kennett Square, Pa., has instituted a landscape management plan of pest control management based on an in-house



Low level pest populations were treated in areas such as the Hillside Garden with short-lived pesticides.

staffed IPM program.

### Goal: no quality loss

Longwood Gardens consists of 1,000 acres, 350 of which are intensively managed as horticultural display gardens and conservatories. These displays attract more than 700,000 visitors each year.

A reduction in the amount of the more toxic pesticides was of primary concern, both from a visitor safety and environmental standpoint. It was imperative that there be no reduction in the horticultural excellence of the displays when pesticide use was reduced.

In short, the goal was to use fewer pesticides while maintaining or improving the quality of the garden displays.

To accomplish this goal, we needed to find a person highly trained in the principles of integrated pest management and familiar with the

Donald R. Buma is a horticulturist at Longwood Gardens.





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## Comparison of some chemicals used

	1984 (Pre IPM)	1985	Difference
Insecticide A	120 lb.	0	- 120 lb.
Insecticide B	83 gal.	17 gal.	- 67 gal.
Fungicide A	126 lb.	45 lb.	- 52 lb.
Miticide A*	50 gal.	5 gal.	- 45 gal.
Insecticide C	28 lb.	0 lb.	- 28 lb.
Insecticide D*	19 gal.	5 gal.	- 14 gal.
Insecticide E*	34 gal.	21 gal.	- 13 gal.
Insecticidal Soap	0	75 gal.	+ 75 gal.
Horticultural Oil (Dormant and Summer)	285 gal.	973 gal.	+ 607 gal.

\*These chemicals used in areas not completely included in IPM program

practices of pest control. A pest manager had to be present in order to identify pests and plan, coordinate, and ensure proper follow-up of control procedures.

Prior to IPM implementation, the spray crew consisted of two on-the-job-trained employees who applied cover sprays based on calendar date and general plant examination. It now consists of a spray applicator and the pest manager.

The pest manager position developed through the upgrading of a vacated post. There was no increase in personnel.

With the addition of the pest manager, a regular inspection (scouting) schedule was established. We now apply pesticides based on need rather than calendar date and past records.

Pesticides are used only if population levels warrant application.

The pest manager scouts all garden areas once every one or two weeks. By checking individual areas regularly, low level pest populations are detected early and are treatable with relatively non-toxic, short-lived pesticides, such as insecticidal soaps and horticultural oils.

In addition to the positive environmental and human benefits of less-toxic pesticides, a major pest management-related advantage exists:

insecticidal soap and horticultural oil do not have as harmful an effect on beneficial insect predators as do the more toxic chemicals.

The resulting increases in beneficial insect populations, which control insect pests, may significantly reduce the need for applying additional toxic chemical controls in the future.

### Pests down, quality up

To date, the IPM program is meeting the originally stated goal of using fewer toxic pesticides (see table above) while not reducing the quality of the horticultural displays.

We have actually increased the quality of the horticultural displays. This is because regular scouting enables sprays to be applied at the optimum times for best coverage and control.

Also, scouting identifies many potential pest problems before any significant damage occurs. There has been additional indirect cost with the IPM program but with the improved displays, it has been more than recovered.

The additional cost was incurred because scouting and pest control were expanded into areas not previously covered by the two-person spray crew.

This made it necessary to augment the pest manager's position on the spray crew on certain days in order for the pest manager to cover the expanded scouting and spot application demands.

Experience at Longwood Gardens has shown the landscapes can be attractively maintained by changing from cover sprays to an in-house program of integrated pest management.

Success depends first of all on having a trained, knowledgeable pest manager to do regular landscape inspections that are followed by timely and correct pest control measures.

It also depends on proper plant care and cultural practices that promote good plant health and reduces the likelihood of pest problems that need to be managed. **WT&T**



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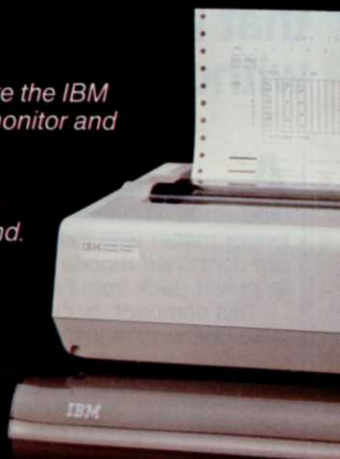
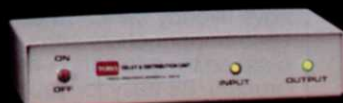
Toro's new Network 8000 central provides two-way communication: "down-loads" information to the satellites, and "up-loads" information from the satellites.

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Key components to Network 8000 are the IBM "XT" personal computer with color monitor and keyboard, operated with handy light pen. Shown in the middle is Toro's Delay & Distribution Unit. And on the right, the IBM matrix printer and stand.

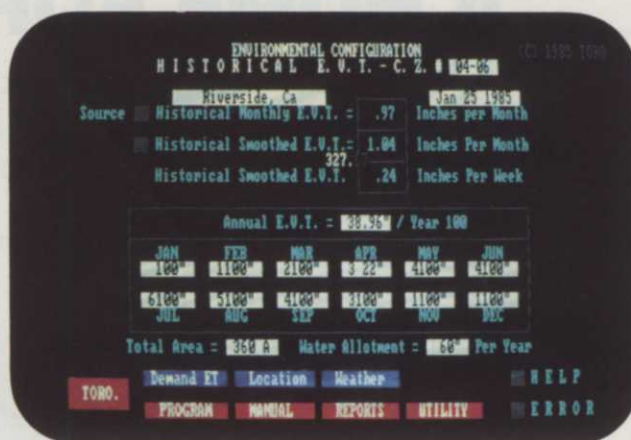




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# A HOME FOR THE PRAIRIE

Natural landscapes are becoming a practical alternative for the low-maintenance landscape manager.

by Heide Aungst, associate editor

Using chemicals to maintain manicured landscapes has long been accepted in the green industry. Then came the media-incited chemical controversy.

Those who shy away from chemicals look for more natural ways to maintain the landscape. Prairies have become a viable alternative, but they aren't without controversy either.

Prairies are defined as 70 percent grasses, 30 percent flowers, with less than one tree per acre, according to prairie enthusiast Brian Parsons of the Holden Arboretum in Cleveland, Ohio. A bedrock, usually limestone, underlays a prairie.

The biggest complaint is that prairies look like weeds, even though the mix of wildflowers and grasses, naturally crowds out most weeds. The aesthetic value of prairies is enhanced by the various wildflowers which bloom at different times from spring through fall.

The renewed interest in natural landscapes has sparked the formation of the Association for use of Native Vegetation In Landscapes (ANVIL) in Illinois.

Prairie maintenance involves burning the area every few years. This practice keeps down the woody vegetation. "In the old days, lightning naturally ignited fires or Indians set fires to improve hunting," Parsons explains.

Prairie burning is another controversy in the natural landscape movement.

"We in the highway business have some unique problems which makes burning difficult," says Charles Gouveia, roadside development architect with the Illinois Department of Transportation. "Ecologically it's a good idea, but politically it's not always practical."

Still, Gouveia has had success with using prairies along Illinois highways. In 1980, he planted about 30 acres of prairie and "salt grass" along Chicago's Eaton Expressway.

Salt grass is the salt-resistant turf mix of Galway turf-type tall fescue, Fults, Dawson creeping red fescue, buffalograss, Rugby bluegrass, and Delray ryegrass, developed by Northrup King, which will be available in



A prairie reserve at Chicago Botanical Garden.



Mark Grundman, turf specialist with Northrup King

sod form this fall.

"We needed things that would live in poor soil and establish a stable community," Gouveia says. "Natives cope with our environment because they've been here for years."

Using prairie has cut mowing from six times a year to twice annually. "Saving money is the name of the game," Gouveia says.

Spraying is no longer needed either. This raises the controversy of

how chemical manufacturers will react to natural landscaping.

"I think the chemical companies will probably be upset about the movement," says Mark Grundman, turf specialist with Northrup King Seed, which is researching prairie grasses. "We don't want to get them mad. We just want to try to control weeds and erosion naturally without pumping unnatural materials into the earth."

For this reason prairie is being integrated into landscapes from homes to parks, and even golf courses.

Paul Boizelle, superintendent at Onwentsia Country Club in Lake Forest, Ill., put prairie in his roughs five years ago. Low maintenance and cost savings are the biggest advantages, Boizelle stresses.

Parks can use native grasses, such as buffalograss, which only grows to six inches. The disadvantage of buffalograss is that it greens up late and browns out early. Grundman says this problem is solved by mixing the buffalograss with other turf varieties.

Old School Forest Preserve in Illinois has successfully used a buffalograss mixture for the turf in the picnic areas. During a drought in 1983, the native buffalograss remained green.

Wetlands are the transition area between land and water. The soils are saturated with water, and the water is always in a state of gradual movement.

About 30,000 acres of wetlands are destroyed in the Midwest each year. Such destruction robs wildlife of their homes.

The restoration of wetland areas can solve severe flooding problems by creating a natural area for water to flow through.

Despite the questions raised by the natural landscape movement, ANVIL members are convinced it is a solution to many landscape problems. They will hold a national conference on the subject at Purdue University in June 1987.

For more information on the Association for the use of Native Vegetation In Landscaping, contact: Dr. Ray Freeborg, Dept. of Agronomy, Purdue University, West Lafayette, IN 47907; (317) 494-4784.

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# MOTIVATION

Having trouble getting the most out of your employees?  
First, you should learn the theories of motivation.

by Rudd McGary and Ed Wandtke

Motivation is a word that has a wide variety of meanings for most business people and one that is used a great deal without any real thought as to its implications in a business organization.

Our motivation discussion is divided into three specific topics. This month we will discuss some of the major motivational theories. Next month, we'll look at specific motivational issues in the Green Industry. The third article will cover compensation factors and motivation.

## Moving through motivation

Let's examine the idea of motivation. The word means to "move" someone, to get them to do something.

There is a distinct difference between long-term motivation and inspiration (inspiration defined as getting people to do something on the spur of the moment through some action).

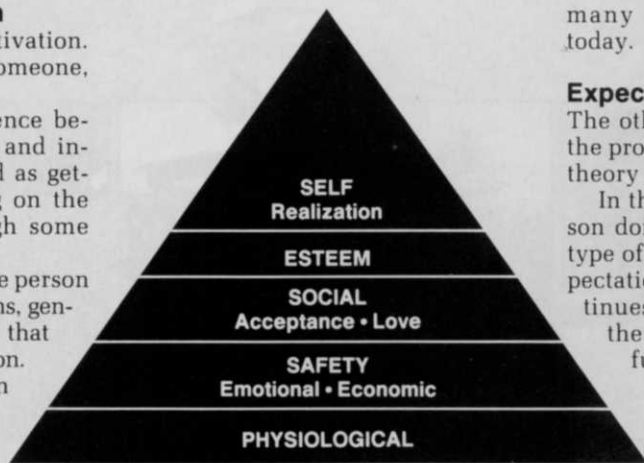
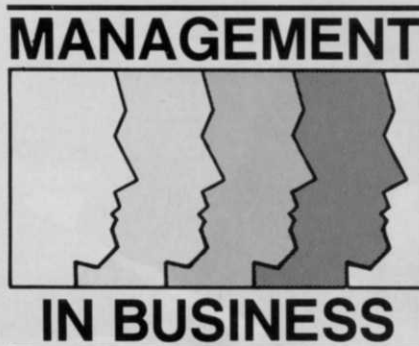
In long-term motivation the person has to feel that there are reasons, generally related to self-interest, that they should perform some action.

One of the facts known about motivation is that only in severe emergencies can a person be motivated to do something they don't want to do. Many managers approach motivation as if there are a set of "buttons" they can push in order to make someone do something.

The simple notion of cause and ef-



Wandtke and McGary are senior consultants with All-Green Management Associates in Columbus, Ohio. Dr. McGary focuses on marketing and management issues. Wandtke focuses on operations and financial questions.



## Maslow's Theory of Motivation

fect works well on certain types of laboratory animals but humans are too complex to simply respond the same way to a stimulus each time that stimulus appears.

In order to better understand motivational theories we can divide them into two basic groups—content and process.

## The Maslow pyramid

Content theories are best exemplified by Maslow's Theory of Motivation (above). As noted in the table, this theory suggests that we go through stages of need that motivate us.

At the bottom of the pyramid are the physiological needs—food, rest, shelter, etc.—that we need to survive. Maslow suggests that we aren't motivated to do anything else until these needs are satisfied.

Each step of the pyramid works the same way. If the lower levels aren't satisfied we aren't motivated to reach the next level.

Another researcher, Herzberg, offers a view of motivation within organizations that has many uses within the Green Industry.

He suggests there are five major motivators within organizational life: achievement, recognition for accomplishment, challenging work, increased responsibility, and growth.

The five motivators are still seen in many motivational models used today.

## Expectations and motivation

The other side of motivation theory, the process side, can best be seen in a theory labeled "expectancy."

In the expectancy theory, the person doing the task expects a certain type of reward for the task. If the expectation is met, the motivation continues. If the expectation is not met, the person turns to other tasks or functions which will meet with his/her expectations.

Certainly, anyone involved in organizational life has seen co-workers leave jobs because it didn't measure up to their original expectations.

The process theories suggest that motivation is ongoing, and that people in organizations change their motivational needs as their own situations change.

The content theories suggest that the variables in motivation—achievement, growth, recognition—always remain the same. Both sides have gained a great deal of use in organizational motivation.

Additionally, both types of motivational theories find people who try to disprove them.

As we continue discussing motivation within the Green Industry, we will use parts of theories from both the content and process sides. That will be the topic of the article that will appear in the November issue of WEEDS TREES & TURF. **WT&T**