



Simple, efficient landscaping and use of native Texas plants and trees are hallmarks of the Johnson Space Center. Water lilies and fish in ponds add beauty as well as keep algae under control.

Controlling costs

Meyer said that those standards aren't maintained simply by spending money.

"Part of the job," he says, "is seeing that all of the funds made available to us are spent wisely and efficiently. We find ways to

The grounds care budget is around \$1 million.

stretch our financial resources and our manpower."

Some of those ways, Meyer said, is purchasing more efficient equipment, using slow release fertilizers and improved chemicals.

"We now have 10 Toro Groundsmaster 72s and a Howard-Price Hydro-80 (15-foot mower) that really suit our needs well. We've also increased our

mobility by using Cushman trucksters to get around."

Meyer explained when he first came to the JSC it took 12 people five weeks to mow the entire complex. Now, with the more efficient equipment, it takes seven people three days.

Turf at the JSC is divided into three classes. Class A turf is highly maintained and manicured. It surrounds most buildings and visitor areas and is mowed weekly. Class B turf receives moderate care and is found beside roads. Class C is the turf in fields most distant from main public areas. The latter two classes, Meyer says, "are mowed less frequently with most fields being mowed only once yearly. In some areas we let it go to six inches before taking off 50 percent of the foliage." The growth rate is roughly 1.5 inches a week.

"I've also changed to slow release fertilizers and now only have to fertilize twice a year

instead of four or five times. We have very alkaline soil which we're trying to make more acidic. By using sulfur-coated urea, we're accomplishing that and avoiding an extra pass over the fields for sulfur application. Doing it this way saves us both time and money in the long-run."

Soil tests performed yearly by Texas A&M University, determine his soil needs.

Meyer maintains that Roundup is his favorite herbicide. Where a long-residual non-selective is

Meyer saves expense and effort by using growth retardants.

needed, he uses Krovar and Spike.

"Much of the weed control work quite simply wouldn't be done, at least not at the level we're doing it, without the help of chemicals," he said.

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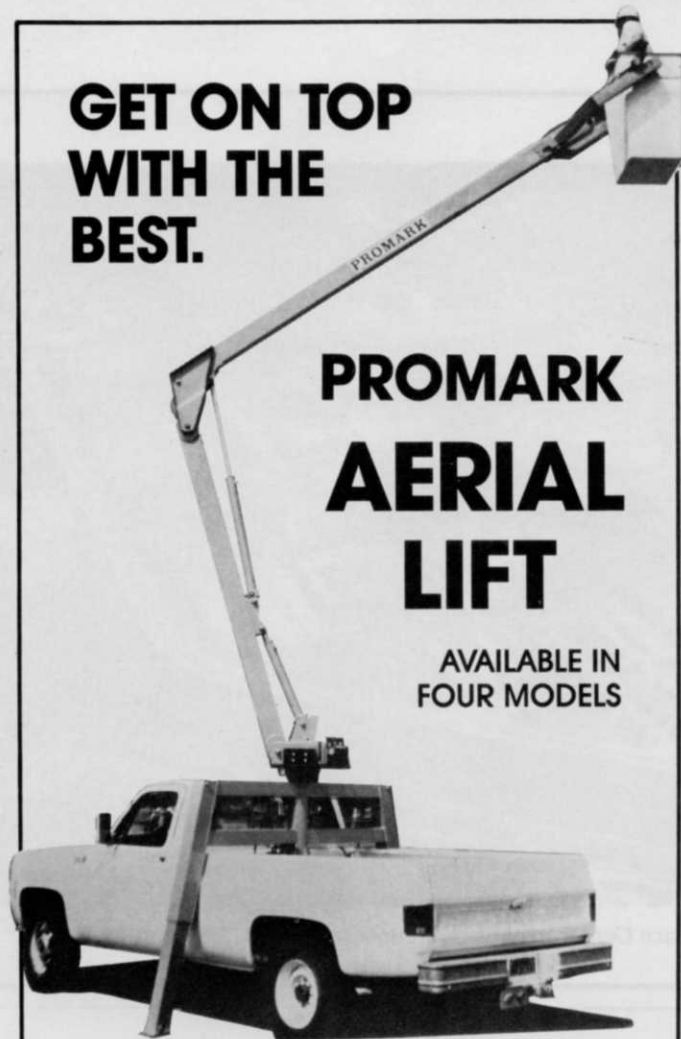
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Meyer usually has the contractor apply around 100 gallons of Roundup yearly to enable a "very intensive weed control job to be done for about half the cost of manual labor."

"One of our major weed problems is dallisgrass, but we also use Roundup to control encroaching St. Augustine and bermudagrass as well as for edging and renovating," he said.

Another herbicide Meyer uses is MSMA, which plays an important role in a practice Meyer believes should be more widespread.

"Where possible," he explains, "I try to turn a tough weed problem into an asset by incorporating that plant into my program. For example, in one area where we would normally want to have our 'premium' grass, St. Augustine, we've stopped fighting encroaching bermudagrass. Now we favor bermuda in that area."

Meyer also saves expense and effort by using growth retardants and limiting his mowing program to what's absolutely necessary.

"We apply Embark on turf along sidewalks and the site's street curbs. Atrinal is usually applied once in the spring to shrubs and hedges.

"I've found Mavrik Aquaflow to be one of the best insecticides on the market. It's very concentrated, doesn't smell and is very efficient. It costs more initially, but in the long-run, it is less expensive to apply and lasts longer," said Meyer.

Flowers and fish

Before Meyer became responsible for maintenance, the several ornamental ponds at the Center were cleaned once or twice yearly.

"That involved opening the drains and cleaning them by using fire hoses," he said. "Now the ponds are stocked with water lilies and various species of goldfish (carp).

"The water lilies make the ponds look attractive and the fish eat sufficient quantities of algae to keep it from getting out of hand.

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People don't mind seeing a little leaf cover on the bottom — and I'm sure don't mind saving the \$12,000 a year we were spending on algicides ... not to mention the money and time we're saving, by cutting out some useless work."

Meyer is in the first year of a 5-year renovation plan. Plans are to add wildflowers, native trees and shrubs, and stone mulch.

Irrigation, too, is only done on an as-needed basis. Much of Houston's rain comes in heavy downpours.

"Since I've been here, we've had two rains of 18 inches or more.

We've also had some very dry periods," said Meyer. "Despite those ups and downs, however, we've managed to maintain a reasonable irrigation program that meets better-than-the minimum needs of our plants without excessively damaging the budget."

Down the road

Meyer is in the first year of a 5-year plan that calls for the renovating the landscapes of all 48 buildings on the site.

He has also started a native Texas wildflower program.

"We've planted 12 acres of 1,200 acres available to us with bluebonnets, the state flower of Texas. They're low maintenance and add a lot to the beauty of the grounds."

The most common trees on site now are live oak, slash pine and sycamores. Fairly common are cyprus, red maples, water oak, willow oak and yaupon. Other species Meyer would like to see

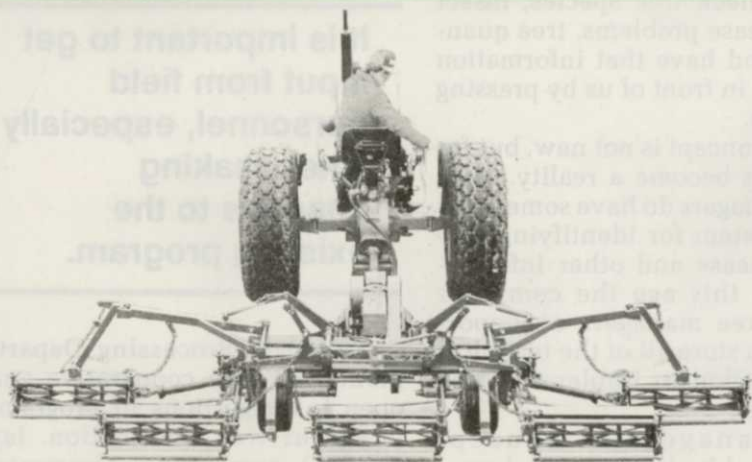
on the grounds are spruce pine, sand pine, Italian stone pine, mesquite, Texas mountain laurel, Chinese pistachio and sugar maple. The latter, he says, will grow "quite well here, but not many people try planting it."

Last year he bought primarily Parkinsonia, Chinese pistachio and mesquite and about 3,000 shrubs - mostly dwarf Nadina, dwarf Indian hawthorne, dwarf abelia, azaleas, several varieties of junipers, cotoneaster, Japanese boxwood and dwarf yaupon. Most of the shrubs' new homes are in already-established ornamental beds. Others, though, will be used to replace honeysuckle beds throughout the site which became badly infested with weeds. For attractive cover in this area, he uses stonebark, a volcanic rock.

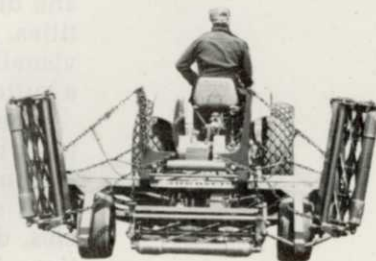
"I bought 60 tons of the rock and it was worth every penny because of what it will save on manpower in years to come," he commented.

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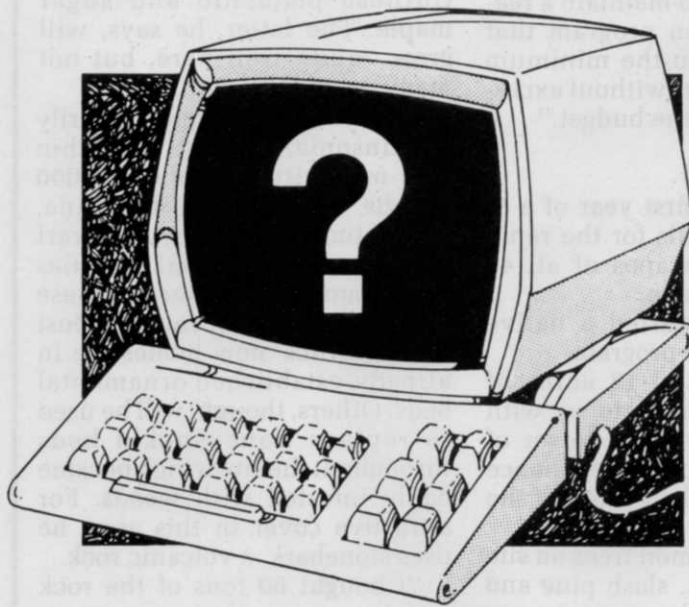
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Going Computer

Computerized records help park superintendent with planning, budgets and reports.

by Ed Porter, parks superintendent, La Verne, CA

Having kept tree records for administrative purposes for several years, the parks department staff felt it was about time we improved our tree management operation and utilized a computer.

The potential was intriguing. While sitting in the office, we could check tree species, insect and disease problems, tree quantities, and have that information visually in front of us by pressing a button.

The concept is not new, but for us it has become a reality. Most tree managers do have some technical system for identifying species, disease and other information. In this age the computer offers tree managers an opportunity to store all of the technical data needed to implement tree programs.

A management concept developed by Herman Weskamp, Professor of Urban Forestry, at Mount San Antonio College, Walnut, CA, gave us the motivation to initiate a computer tree program for the City of La Verne.

In order to even consider having a tree program, a need must exist. If that need is present, then that is your starting point. The expense of a computer can be very

costly but, in our case, we were fortunate enough to have an IBM System 34 Computer. One of the biggest hurdles facing us was convincing Administration of the justification. Much to our surprise, Administration was very enthusiastic and receptive of the idea.

It is important to get input from field personnel, especially when making changes to the existing program.

The Data Processing Department was very cooperative and open to suggestions in programming our tree information. Jay Trunnel, computer programmer, discussed with us at great lengths the type of information needed in setting up a program. It is as important for the programmer to understand your goals, objectives, and purpose as it is for you, as a novice, to understand what he can do for you. Cooperation of both departments is a must.

continued on page 86

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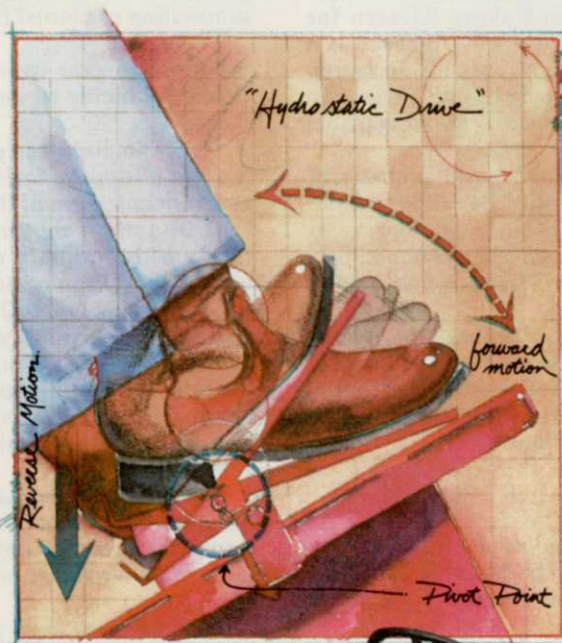
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APRIL 1984/WEEDS TREES & TURF 67

PROBLEM SOLVERS

by Balakrishna Rao, Ph.D., and Thomas P. Mog, Ph.D.

Basagran for nutsedge

Problem: We have a problem controlling nutsedge in lawns. We have tried Betasan without much success. What are we doing wrong? (Ohio)

Solution: Perhaps you are mistaking Betasan for another product, bentazon (Basagran). Betasan is a preemergence herbicide for grassy weeds. Basagran is a postemergence herbicide which is very effective on nutsedge when applied to actively growing plants in late spring.

Yellow nutsedge is a serious weed problem of warm-season turf. It establishes by underground tubers or from germinating seed in late spring or early summer. Heavy populations can occur in July and August in areas thinned by summer stress, insects or diseases.

Basagran should be applied after seed has germinated in late spring but before tubers are formed. Repeat applications may be needed, but do not apply to newly seeded turf. Avoid mowing three to five days before and after applications.

Scab on crabs

Problem: Scab was devastating last year especially to the flowering crabs. Will it be as bad this year and what can be done to help them? (Ohio)

Solution: I agree with your observation that scab (*Venturia inaequalis*) was at unusually high levels in 1983. The weather last spring was ideal, cool and wet, for infection by and development of this fungus leaf disease. My observations were that the red or purple-leaved trees were more severely affected than those with green leaves. Some trees were, for all practical purposes, leafless by late June-July. Since these trees had their full compliment of leaves for less than half the growing season, the photosynthate produced (sugars) and stored (starch) for growth this year must be way below normal.

The fungus which causes scab overwinters in fallen leaves and on the twigs. Removal and destruction of last year's infected leaves helps. If we get a long, cool and damp spring the susceptible species, which include many of the flowering crabapples and hawthorns, will be in trouble again.

Three applications of an approved fungicide, the first applied just before the blossoms open (pink bud) and twice more at 7- to 10- day intervals, should provide satisfactory protection. If it is exceptionally rainy, more sprays will be needed. Fertilization is highly recommended to maximize the new growth you do get. Some states, Ohio being one, recommended late summer or fall fertilization for the scab problem.

The trees really looked bad last year and a few people have gone as far as suggesting that many might not make it throughout the winter. Thus your concern is certainly justified. Fungicide sprays and fertilization are needed to promote recovery and survival of this beautiful popular group of flowering ornamentals. The best solution to future scab problems is the use of disease-resistant varieties.

Avoiding herbicide contamination

Problem: In our lawn care business, sometimes we experience herbicide injury of desirable ornamental plants. Would you please recommend some guidelines to correct the possible herbicide contamination of plants? (Michigan)

Solution: Success in rescuing the plants from accidental herbicide contamination depends on several factors.

These include early recognition of the problem, timely and appropriate protective measures and type and concentration of the herbicides involved.

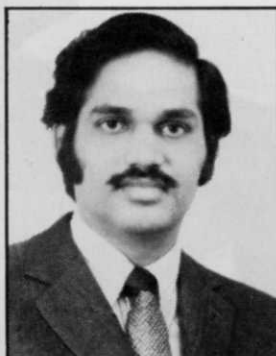
Drift and/or root uptake of lawn-applied materials are the primary cause of contamination from herbicides. Often accidental spillage also can present some problems. Depending on the application technique, delivery system and wind velocity and direction, materials may drift from the target area (turf) to nontarget plants. If 2,4-D, dicamba or other phenoxy herbicides drift onto gardens or ornamentals, apply water to dilute and wash off the chemicals.

These herbicides are less damaging to plants if they remain in soil rather than on the foliage. Reports suggest that any first aid treatment should be performed within three to four hours to get any benefit.

In some cases, light pruning of the affected plants and then watering to wash the chemical will help.

Ester formulations of 2,4-D can volatilize and enter plants rapidly. Therefore, any corrective measures should be performed within one to two hours. Materials like 2,4-D Amine, Banvel and Roundup enter plants more slowly. Reports indicate that protective measures applied three to four hours after exposure could be beneficial.

Usually, a very low volume of material will be



Balakrishna Rao is plant pathologist and Thomas Mog is pest management specialist for Davey Tree Expert Co., Kent, OH.

Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.

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delivered through drift. Therefore, if proper corrective measures are followed, it will not produce permanent injury. Roundup is absorbed only through green, living tissue and reportedly breaks down when it contacts soil. Thus it seldom presents problems of contamination unless it is through a directed spray.

If rain or irrigation has caused a problem with Banvel, use activated charcoal as an antidote. Reports indicate that herbicide rates of four pounds or less of active ingredient are counteracted with one pound of activated charcoal per 100 square feet incorporated to a depth of six inches. It may take six months to correct the contamination.

Since corrective measures are time-consuming, expensive and may produce variable results, it is best to correct the causes of possible contamination and, if possible, keep away from sensitive, desirable plants.

Rock salt the culprit

Problem: *The trees and shrubbery near our driveway and sidewalks are dying. Someone told me that the rock salt I use to melt the ice is killing them. How can I tell if salt is the problem and what can I do about it? (Minnesota)*

Solution: Rock salt is commonly used to de-ice roads and walks because it does the job and is inexpensive. Too much salt can injure plants. Look for discoloration of the leaves or needles. A marginal browning or

tip burn of evergreen foliage may show up in winter or early spring.

Plants which are leafless during the winter will show similar scorch-type symptoms the following year. Less obvious is a gradual reduction in plant growth. Sometimes there is a premature fall coloration and leaf drop. This is especially true of salt-sensitive species such as sugar maple.

The fact that you use salt and that the plants closest to the salted areas are dying, makes rock salt reasonably suspect.

Rock salt is mostly sodium chloride and both sodium and chloride can be toxic to plants. You may want to use calcium chloride. Calcium chloride is more expensive, but not nearly as toxic to most plants. Be aware that although calcium chloride is safer, too much can cause salt injury.

You might consider using sand, sawdust or something like kitty litter to improve traction on icy surfaces. If there are white deposits on the plants, wash the salt off with water when the temperature gets above freezing. Plants appear to be more readily damaged by salt that is blown or splashed on them than by salt taken in through the roots.

The soil beneath the plants should be tested in late winter for soluble salts to determine whether salt is present at phytotoxic levels. If there is a problem, gypsum (calcium sulfate) applied at a rate of 50 to 75 pounds per 1,000 square feet can be used to "neutralize" the adverse effects of sodium chloride. Depending on your particular drainage situation, you may want to install curbing or channel salty runoff away from the trees and shrubs.



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