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Fertilizer

bohydrates and nitrogen metabolism and are evidenced first as marginal and interveinal yellowing of older leaves. Leaf tips may roll, turn brown and wither. Growth is often stunted.

Potassium mobility in soils is less than that of nitrate but greater than that of phosphates. The available form of potassium(K⁺)

Iron is the micronutrient most likely to be deficient in much of the U.S.

is strongly adsorbed by clay particles which prevents excessive leaching except on sandy soils.

The most common potassium fertilizer is potassium chloride(0-0-62), although potassium sulfate(0-0-14) is often used in arid regions where chloride is a problem or in commercial lawn care programs because of its lower burn potential.

Potassium sulfate has a lower solubility and may contain insoluble silica fractions. Potassium nitrate(13-0-44) is an excellent fertilizer but generally is not priced competitively with the chloride or sulfate forms. Monopotassium phosphate(0-52-34), as mentioned earlier, has excellent potential as a fertilizer but its use is limited because of its high cost.

Iron

Deficiencies of micronutrients such as iron, zinc, manganese, copper and boron are sometimes found in certain plant species, especially when grown in alkaline or sandy soils. Iron is the micronutrient most likely to be deficient throughout much of the United States and Canada.

Iron is essential for the formation of chlorophyll and its deficiency is initially expressed as interveinal and marginal yellowing of the youngest leaves. Prolonged iron deficiency can result

in decreased shoot and root growth because of a lack of chlorophyll to maintain photosynthesis.

Iron deficiencies do not usually result from a lack of iron but rather because the iron is tied up or "fixed" in insoluble compounds. Iron is most commonly deficient in alkaline soils although excessive levels of phosphate, manganese, zinc, and copper can produce iron deficiency. Waterlogged soils can also reduce the availability of iron.

Since iron deficiency is often the result of alkaline soil reactions, acidifying soils would appear to be a practical solution. Calcareous soils, however, may have large reserves of calcium to buffer attempts to lower the pH, particularly if the soil is fine textured. Relatively large amounts of sulfur may be required over a number of years to correct the pH of clay soils.

Compounds containing iron can be applied to the foliage, soil, or, for trees, injected or implanted into the trunk.

Materials for foliar and soil application include inorganic salts, such as ferrous sulfate and ferric nitrate, available from agricultural and horticultural distributors; and chelated forms, such as Sequestrene from Ciba Geigy and Ferriplex from Miller Chemical and Fertilizer Corp. An organic product called Eagle-Iron from Eagle-Picher Industries Inc., is effective for iron deficiencies in crops and is being tested for turfgrasses and woody plants.

Iron from inorganic salts is quickly combined into insoluble forms in alkaline soils and little remains available for plant use. Chelated irons react slower with soil components and improve the continued availability of iron.

For trunk injection or implantation of chlorotic trees, iron salts such as ferric citrate and ferric ammonium citrate are available from laboratory chemical distributors or may be ordered through a pharmacy. **WTT**

Government Cutbacks Force Increased Efficiency

Park superintendent job grows
as staff size and budgets shrink

By Maureen Hrehocik, associate editor

The economy has put a tight lid on government landscapers' budgets, and according to the results of a Weeds Trees & Turf survey, staff sizes have stayed the same or decreased.

The average budget for government maintenance in 1983 is \$270,000, with an average \$50,000 budget for landscape construction. The average staff size is 17.5, with number of personnel ranging from 1 to 175. "Our staff has been reduced to one-half its original size in 1975 through the attrition process. But the areas of respon-

Most Important Areas of Work

1. Athletic Fields
2. Outdoor Building Maintenance
3. Park Maintenance
4. Tree Management
5. Snow Removal

involved in municipal government landscape management of, on the average, 1,020 acres (50 under some form of irrigation). Those answering the survey came from a broad range of city, state, county and military landscape management, including school superintendents, grounds foremen, crew chiefs, park rangers, gardeners, airport managers and entomologists.

Athletic fields, outdoor maintenance of buildings and park maintenance ranked among the most important areas of care for the respondents. Least important

were military installations, cemeteries, golf courses, street and airport maintenance.

The most common type of machinery owned by managers were tractors, small push mowers, chain saws, large riding mowers, dump trucks, string trimmers and fertilizer chemical spreaders.

Most contract out tree trimming and plant and landscape installation . . .

Repairs are most frequently done by state, county or city service departments or city mechanics. Many repairs are done by the equipment operator.

A resounding majority of those who answered the questionnaire were responsible for purchasing chemicals, seed and equipment for their agency or division, usually under bid. Most budget planning is done in February and March.

Fertilizers were the most frequently used chemical by a majority of the respondents, followed by herbicides for turf weed control and herbicides for total vegetation control. Few used growth regulators or wetting agents.

Trade magazines, publications and journals provide the primary source of information for new seed varieties, chemicals and equipment. Company sales reps, seminars and advertisements are

Fertilizers were the most frequently used chemical . . . followed by herbicides for turf weed control and herbicides for total vegetation control.

sibility and maintenance have increased," said one respondent. Another respondent said with the tight money situation, he will be feeling the effects for a "few more years, at least."

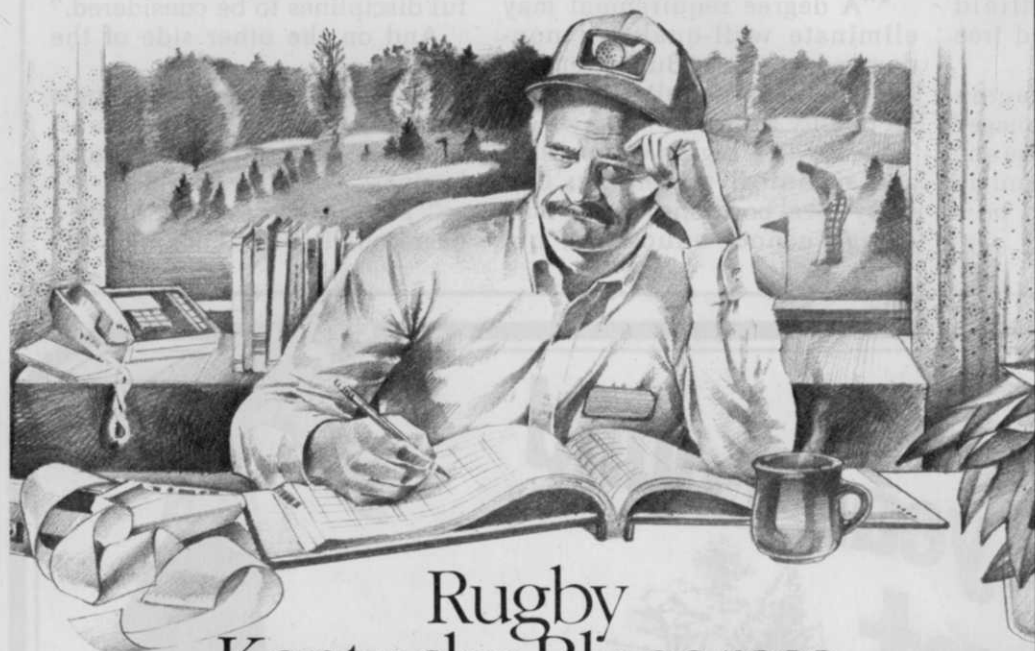
One park superintendent said his 1983-84 budget plan of attack will be greater use of chemicals, large mowing equipment, specialists, park planning, maintenance management, low-maintenance turf and computer use.

The majority of respondents were in supervisory positions and

Most Common Types of Equipment Owned

1. Tractors
2. Small push mowers
3. Chain saws
4. Large riding mowers
5. Dump trucks

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5. Fungicides

also used to decide a maintenance program as well as purchases.

Most contract out tree trimming and plant and landscape installation as well as tree removal, grading, asphalt repair, ballfield dugouts, snow removal and tree moving.

Most landscape managers agreed the property they managed is in passable shape for its use and felt that major improvement in public landscaping would be a hard issue to sell to voters.

An almost equal split of respondents thought a degree was necessary to perform the duties of government landscape manager, while the other half thought it was unnecessary. Some of their thoughts:

***"We normally have too many other duties beside the care of the land. The persons hired by our school district learn from trial and error or from a salesman. We normally pay too low to hire professional employees."

***"It (degree) would be helpful to some degree, but my duties are so varied, the degree would be of limited benefit."

***"A degree requirement may eliminate well-qualified non-degreed persons. But extensive knowledge is definitely needed for quality results."

***"This is a highly competitive and technical profession. Our entry-level positions require only a high school education, but

An almost equal split of respondents thought a degree was necessary to perform the duties of government landscape manager, while the other half thought it was unnecessary.

almost all our entry level staff have degrees. A degree specifically in horticulture or business is not necessary, however, but they should be the two of the most useful disciplines to be considered."

And on the other side of the coin:

***"You deal with so many people from all walks of life you must know the material and be a good business executive as well."

"The ideal person is one with a degree AND experience." **WTT**

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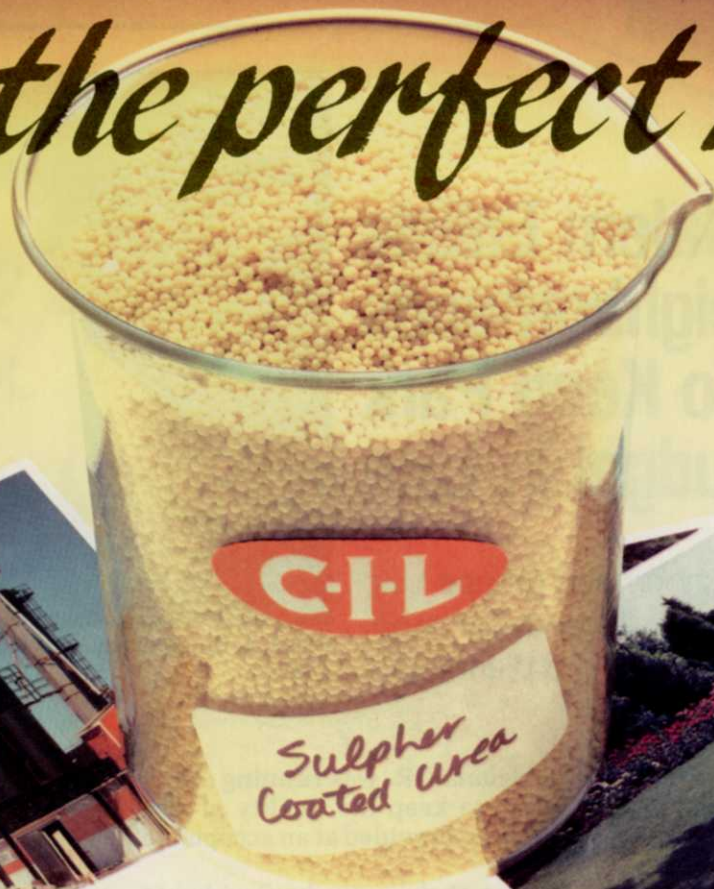


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Salem Enlists Neighborhoods To Keep Park Budget in Line

Nineteen neighborhood groups help plant ivy in medians, pull weeds by hand, pick up litter, and plant trees.

By Maureen Hrehocik,
associate editor

Dealing with cutbacks is part of life for Frank Bellinghausen. With a budget that has continually weathered cut after cut and a staff reduction of from 68 permanent employees six years ago to 45, the parks superintendent for the city

of Salem, OR, was running out of ways to keep the quality of services he provided at an acceptable level.

One of the ways he decided to stem the tide of his ebbing budget, Bellinghausen's department became involved in the city's Self Help Project. The Project lets neighborhood groups get involved



Frank Bellinghausen, parks superintendent for the City of Salem.

in the work of keeping their neighborhood in good shape. It saves the city time and some expense and offers the residents a quicker way of getting things done in their particular neighborhood.

This summer, Bellinghausen had three projects under way with four completed. Residents help with planting ivy in medians, hand weed pulling, planting trees and litter pick-up. Salem has 19 neighborhood associations.

"It has its problems, but it works," said Bellinghausen who endorses the project enthusiastically. "We live within the resources we have and where we can, we seek non-governmental support. We're reaching more and more to the volunteer aspect."

After a neighborhood's proposal is accepted by city council, the city provides the funds and the neighborhood provides the labor.

Working with and within a combined city and county \$1,900,000 parks' budget consumes much of Bellinghausen's time. (Another \$100,000 to \$200,000 is budgeted for construction.) He admits budget bureaucracy can be time consuming and tiresome. All budgeting is done through the city's budget



Tree trimming and shredding in one of Salem's many city parks.

committee, composed of 9 city council members and an equal number of citizens.

"There's a lot of red tape," Bellinghausen said. "I have to go through three budget committee hearings a year."

The department's greatest task is maintaining the turf and trees. In 1979, the department cared for 976 acres. This year that acreage has climbed to 1,644.

"We know how to do the work, but the budget curtails us," Bellinghausen said. "We have had no uniform application of herbicides for the past five years and have no budget for fertilizing in 1983. While the cutbacks continue, the demand and use of the turf in all areas is up. We can't reduce mowing any further without disturbing play."

The city has multi-use fields for baseball, softball and soccer and has a four-field softball complex in the middle of the fairgrounds. "When it gets to be state fair time, I have to schedule crews to go in and take down the backstops," Bellinghausen said.

Even with the cutbacks, Salem has had its share of recognition and awards, including being named Tree City, U.S.A. for the past seven years by the Arbor Foundation (The city of Salem alone has more than 60,000 street trees) and being named an All-American city for municipalities of its size for 1961 and 1983. "The city has done well to promote its parks with the resources it has," he said.

To make his division more efficient, Bellinghausen contracts out some of the maintenance on the older city parks so that his crew can handle the newer areas. He has developed a "program budgeting system" where the work areas in the city are divided up and cataloged so that an orderly and efficient maintenance schedule can be followed.

The city of Salem has neighborhood "mini-parks" which are usually small plots with play equipment on them. The larger community parks have regulation



A city worker does edging around the Salem Civic Center.

ball fields and in some cases, tennis courts. Large urban parks such as the Minto-Brown Island Park & Wildlife Refuge, only five minutes from the heart of downtown Salem, has jogging and bike trails and observation areas.

Bellinghausen has a serious erosion problem to deal with along the Willamette River in the refuge and will work with the Army Corps of Engineers to correct it.

"We are reaching more and more for volunteer help."

The equipment for the parks and recreation department is rented from a city equipment pool. In some cases, Bellinghausen has found it more cost and time efficient, rather than tying up his rented equipment, to contract out certain work such as mowing and tree trimming.

Manhattan ryegrass is predominant in the city's older parks. Now, Bellinghausen said, he uses a Derby/Manhattan mix. More than 400 acres are irrigated automatically.

He is also having a reoccurrence of Oak pit scale."Up until two years ago, we had it under control, then the budget was cut and we couldn't afford preventive maintenance anymore."

Bellinghausen has a parks supervisor who is responsible for the maintenance section and who oversees four foremen; and a Foreman II who heads the repair and construction section and also cares for three pools owned by the school district. Nine craftsmen work for him.

"A lot of my job is to pave the way for other people to get their jobs done," said Bellinghausen, referring to the governmental channels he must go through. But, he says, he is used to it and his past work experience shows it.

Prior to coming to Salem, Bellinghausen worked for 16 years for the State of California Department of Parks and Recreation. He was a park ranger and became the Statewide Ranger Training Coordinator at Asilamar, assisting in training all new park rangers in the state.

Besides working for the Forest Service, he was a State Parks Supervisor and an Area Manager. He has worked in Squaw Valley, Marin County, Samuel Taylor State Park, Point Reyes and was involved in the early stages of the Old Town San Diego State Historical Park renovation. In those 16 years, he made 13 household moves.

"It was just getting to be too much," he said, "and I wanted to get out of the law enforcement end of it."

When he came to Salem in 1972, he restructured the Parks Division. One month after he started his new job, he became involved in the Pacific Northwest Park and Recreation Management school. "My department has managed to meet the day-to-day challenges and avoid suffering too much," Bellinghausen explained. "We haven't had to run around and put out 'brush fires' because of the support of the community and elected officials." **WTT**

LANDSCAPE MANAGEMENT

The Commons is a Number One priority area, receiving twice-a-week trimming and daily policing to keep up the Naval Academy's spic 'n span image.



Sherman Wallace and Bill Cusimano inspect the ornamental plantings at the Superintendent's Quarters on the academy campus, where visiting heads of state are entertained.

Cusimano Navigates Protocol At U.S. Naval Academy Campus

Former landscaper scrambles to make 4,500 midshipmen, thousands of tourists, and visiting dignitaries feel at home.

By Kevin Cooney,
assistant editor

The U.S. Naval Academy in Annapolis, MD., is not only a government reservation, but a university, tourist attraction and an athletic entity, according to Bill Cusimano, grounds maintenance manager. It is foremost a military base and operated like one.

Strolling through the tree-shaded central campus, one would believe this was another well-manicured Ivy League university until you notice the military statues and memorials that dot the landscape. Then come the plebes (freshmen) and midshipmen, strolling smartly along the red brick pathways in their crisp white uniforms.

Down by the harbor, rows of athletic fields line the sea wall while a few yards away the class of '87 clamber over the school fleet of training vessels, learning the basics of navigation and boat handling they will one day use to pilot destroyers, frigates and air-

craft carriers through the world's waterways.

Cusimano ran his own general landscaping business for 19 years before he took over turf maintenance chores at the academy in 1978. He said he learned quickly government work means "you have the responsibility, but not the authority" to get the job done on time.

"When I ran my own business, my work crews had the authority to go out and buy the necessary tools to keep the job going. Here, I have to plan sometimes two months ahead to make sure we have what we need.

All equipment and tools at the academy are purchased by the General Services Administration, which determines what to buy based strictly on the lowest bid. "That way you get the cheapest, but not necessarily the best," he said.

Sherman Wallace, Annapolis' pest control foreman, noted that he can, and does, receive specific brands of fertilizers, fungicides

and pesticides he requests. But he has to specify why a specific brand is more appropriate than others for individual jobs and meet state, naval and coastal regulators' requirements before he gets what he needs.

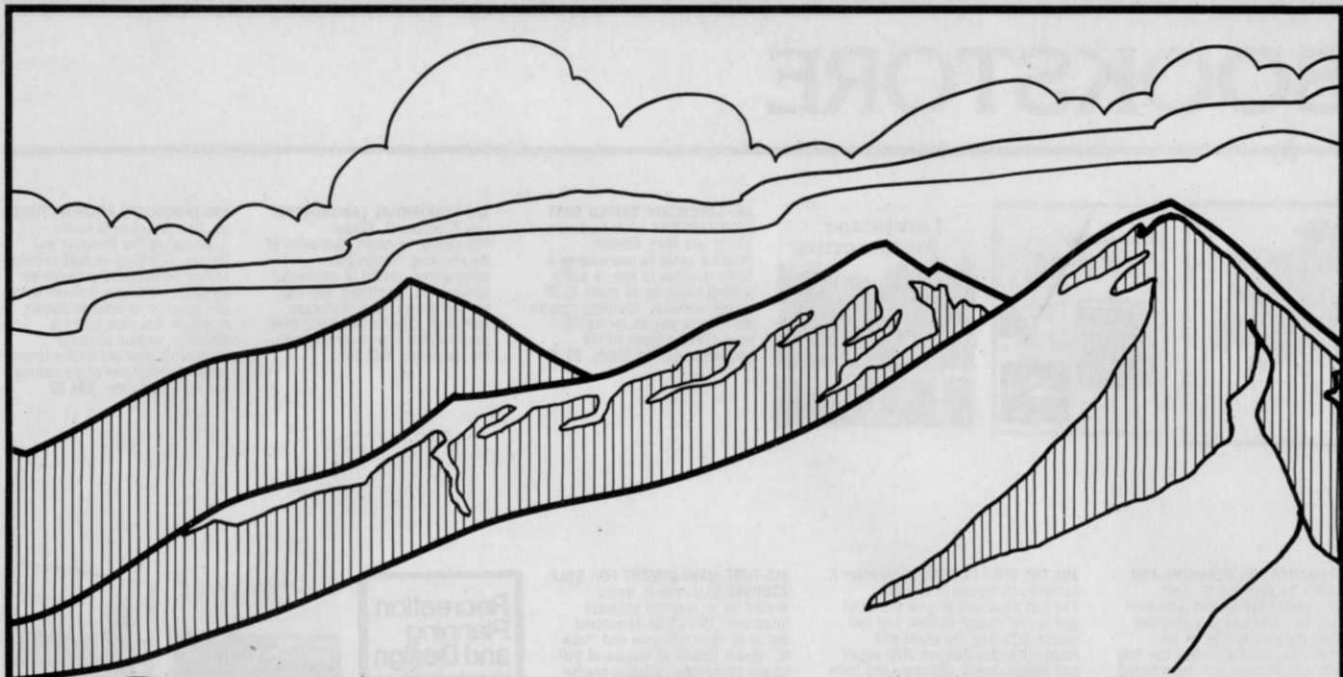
Trim areas are mowed with Jacobsen 20-inch rotaries, and the division's Woods rotary mowers handle the big areas towed behind John Deere or Massey-Ferguson tractors.

Jacobsen reel mowers are also in the academy's inventory. Hustler Excel riding rotary mowers round out the campus equipment.

Decentralization is so inherent in the management structure at Annapolis that Cusimano can't estimate his annual budget. Those figures are spread among the payroll, transportation, purchasing, personnel, housing, athletic and several other departments at the academy.

Occasionally, Cusimano will discover an outside contractor doing work on the grounds as he

Continued on page 54



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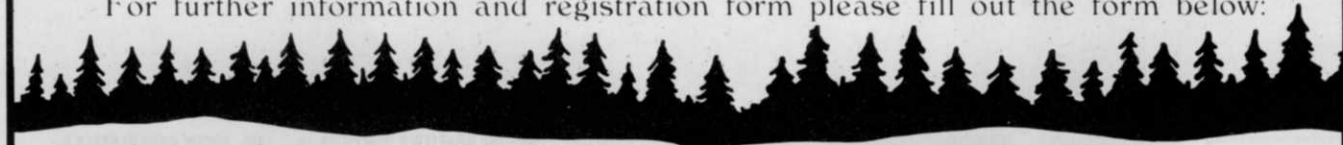
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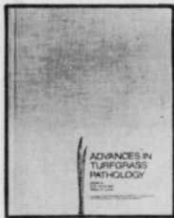
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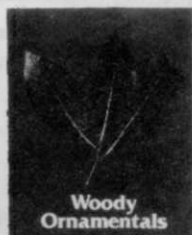
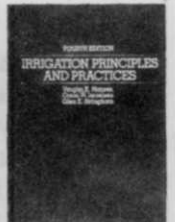
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