

All sorts of jollops had been slopped into cavities, most of which did more harm than good.

The most ambitious undertaking was usually lopping, topping and removal of branches. This work was carried out by people without much skill or experience and the results were often drastic both for the tree and the operator. During the twenties one or two people filtered back from America who had been trained by Davey, Bartlett and the other big companies. They practiced—usually in a small way—very expensive treatments to very special trees. Then the war came and everything stopped for six years. People who returned found a legacy of neglect. Gardens were overgrown and trees had been felled for timber. Municipal officials were trying to reclaim and maintain their existing gardens in addition to creating new ones, to cater for the massive housing developments which were taking place at that time.

As agricultural land was lost to industry, trees took on a new significance. There were no longer enough to go 'round, as more and more disappeared under the bulldozer.

Residents, committees and local amenity societies became very tree conscious. This demand for tree care was the climate in which professional arboriculture, on a properly organized commercial basis, emerged in England.

Five Pounds and a Motorcycle

After some preliminary maneuvering and learning the profession in other companies, I met Tom Wilson, a Canadian from Manitoba, and we set up our present company, The Southern Tree Surgeons, Ltd. At its outset this was not the most magnificent undertaking, as we had five pounds and a motorcycle which I had borrowed from my brother. It was a great day when we acquired our first, second-hand van for the magnificent sum of fifty dollars. At least we had started to come in from the cold.

By our basic nature and business practice, we carried out our work as conscientiously as we could, and to this extent virtue was certainly rewarded. We eventually had our first man and gradually over the years others came and till at the present time we are a staff of 45 people. We are the largest arborial contractors in the United Kingdom. Things have certainly evolved a great deal from that first precarious outing on the motorcycle.

We soon realized that traveling

was costing us a great deal of money, although even then it was nowhere on the scale that you undertake in America. In this congested island, a journey of 100 miles can take anything up to three hours; so you can imagine that some deployment of our forces was necessary if we were to work competitively in other areas. We coped with this problem by setting up four branches strategically placed about the country, and put them in charge of our most experienced personnel who were able to work entirely on their own initiative.

Labor Costs and Charges

When we first started to expand, some 10 years ago, costs were vastly different from what they are today. It is rather difficult to give you exact comparisons for that era as the value of the pound is considerably different from what it is today. At that time a top climber earned around £7. 10. 0. (\$20) per week, and we charged him out to the client at 4-5 pounds (\$11) per day. Taxes have increased and the cost of living has gone up to the extent that a top man will now get around 25 pounds (\$70) per week, in addition to which he often has the use of the van after hours.

This may sound a fairly lucrative business, judged by American standards, but bear in mind that each individual today costs us 5 pounds before he leaves the yard on Monday morning and various social benefits. We also have what is called a Selective Employment Tax for people in what are termed non essential industries. Today we charge these men out to the clients on a basis of between 12 and 14 pounds (\$33-\$39) per man day. If we are staying away from home, accommodation is added to this charge.

Contract on Exact Quotation

In England all work is done on an exact quotation and not, as I found in America, on cost-plus certain percentages all of which were based on the time taken. People here like to meet you with an exact appointment (and if you are 10 minutes late, they are most unhappy). They will tell you exactly what they want done, and they expect you to submit an exact quotation for what ever has been agreed. Most of the disagreements in this country that do occur are the results of loosely worded arrangements, or no proper contractual procedure. If we went on cost-plus, I am sure we would spend most of our time in court trying to get our bills paid. I know there is

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The typical Southern Tree Surgeons crew is shown below. At right, they're getting instructions from Bill Matthews. Some jobs take them more than 100 feet into the air, such as the one on the previous page and at left.



more risk to exact bids but on the other hand there are fewer arguments also.

The climate as regards competition is now very similar to that in America. Nearly all public work is put out to tender, and we have exactly the same problems with loosely worded specifications put out by people who have no real understanding of the work.

Organizations and Education

We are trying very hard to improve the situation by meeting and lecturing to public figures and organizations to get across to them that they need an expert to prepare and administer tree work in exactly the same way that they are prepared to accept experts in other fields. The trouble is with trees that everyone is an expert. It was this sort of aggravations that prompted us to form our own professional association and this we did some four years ago when the Association of British Tree Surgeons and Arborists was started.

We started off by arranging public demonstrations to which we invited all the important people to show them exactly what good tree work

was. This had two objects, to stimulate interest and to try and prevent some of the atrocities that had gone on when tree work was carried out by any Joe who happened to knock on the door, largely because the people had no idea at all of what was needed, or how tree work should be carried out.

These demonstrations created a great deal of interest and culminated in our organizing a three-day 'teach-in' on arboriculture at a well known horticulture school. When it became known that this course was on the stocks, the response was overwhelming. It was the most over-subscribed course this institute ever had. We took some 80 people, and organized three days of lectures and practical demonstrations.

The principal of the college then became interested in forming a definite department to deal with arboriculture and we eventually decided that the greatest need was for practical operators, and this led to organizing a 12-week course in tree surgery, and hiring a permanent instructor to go on to the staff. We now have the first three or four courses behind us and a great deal has been learned during this first training session. It is now obvious that people need longer practical experience, and to this end we have re-designed the course so that inter-company training is carried out during normal operations. What was formally a 12-week concentrated session is now being divided into two- or three-week chunks over a period of 18 months to 2 years, during which the students will return to the college at intervals to take examinations in various practical skills which lead to a final examination during which they will be able to qualify as craftsmen.

We have managed to get a nationally recognized examining organiza-



Grounds around Blickling Hall, Norwich, Norfolk, are under the care of Southern Tree Surgeons, the largest arborial contractors in the United Kingdom.

tion to accept this scheme, and have thereby established the first step in a career structure in arboriculture in this country.

In addition to these practical examinations we have two other main qualifications which are awarded by the Royal Forestry Society. These are a Certificate and a Diploma in arboriculture. The Certificate could be regarded as the intermediate stage and the Diploma as the advanced.

With all this eruption going on, and people becoming more aware of the need for arboreal training, other courses and 'teach-ins' started to pop up all over the country. In order to prevent confusion, we called a national symposium to discuss education in relation to arboriculture and the result of this is that a committee has been set up, with representatives from all interested organizations, to get the thing on a properly organized footing and to prevent confusion which could be caused by small break-away groups.

In our own company, we are finding that the old philosophy of taking the first guy whom comes through the door disappeared some years ago. We are now trying for the well educated lad who not only knows **what** to do but **why** he is doing it. Our own operations have extended throughout the British Isles, Scotland, Ireland, Wales and the Channel Islands. As you can imagine, this causes some very complicated costing problems, and we are beginning to wonder if the enthusiasm with which we rush hither and thither is often a little misguided when we come to do our sums at the end of the contract.

Sir Winston Churchill and the Cedar

In common with many of our American counterparts, one of the most rewarding things of this work is that one is constantly meeting interesting and important people, and we have certainly had our fair share of these. We have worked for most of the major institutions, Windsor Castle and lately at the Queen's own country residence at Sandringham in Norfolk. One of our more interesting early contracts was for Sir Winston Churchill at his home at Chartwell in Kent. This incidentally was also one of our most difficult contracts in that Sir Winston had instructed that a dying Cedar be reduced. This was a fairly routine job apart from the fact that the tree was situated in a wood shed at the junction of four rooves and

every piece had to be taken down by erecting a scaffold frame around the tree, cutting it off in foot chunks, splitting them and dropping them down through a foot gap between the tiled roof and the tree. When we were half way through this operation, Sir Winston came down the garden and said it had gone far enough. There were about 12 ft. of Cedar bole sticking up in the air without a single branch on it at this time. "Leave it," he said, "and let it shoot out again." We protested at this and told him there was no

likelihood that Cedar would shoot or put on any growth at all from such a stump. But the great man persisted, "leave it," he said, "if I am wrong, it will not be the first time." We could not help but wonder what had happened the last time he was wrong.

The tree of course did not shoot, and we were summoned again some six months later to reduce it down to the nearest live branch because, as he said, "it looks like a factory chimney."

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year for quite a long time, and toward the end of his life we used to watch him sitting alone on his seat by the lake, feeding his black swans of which he was very fond.

Dutch Elm Disease Heavy

One of our great needs is for more research into broad-leaved tree problems. Our own state foresters are very good when it comes to anything coniferous but as broad leaves have not been considered a very good commercial crop over the last 30 or so years, very little has been done about problems which are peculiar to them. This year in particular we have been plagued by the worst attack of Dutch Elm Disease for the last 30 years, and in some parts of England up to 90% infection has been recorded. There also have been serious outbreaks in other places, and we hope this scourge is not going to take hold of the English Elm the same way that it has done in America. Another problem which is causing trouble at the moment is canker of Plane, and as usual we are calling on all the information we can find from America, which has so often proved in-

valuable to us over the years.

Tree Care Equipment

And so we have arboriculture as it is in Great Britain today. There are a number of modern companies with up-to-date equipment, branchwood, chippers, stump choppers, and so on. Safety equipment is now generally used, and, of course, all these things are based on American know-how or in many instances are the actual American machines imported into this country. As yet it is difficult to convince our manufacturers to take arboriculture seriously, rather than regarding it a minor market.

One of the main impressions in America was of the enormous capital outlay that goes into your companies. This may be due to the difference in the tax structure, and to some extent to the higher standard of living. We can not in this country, as yet, afford things like highlift platforms, which I saw operating in America by quite small companies. Even such things as brushchippers have to be bought very carefully over very long periods. The stump choppers are owned by private contracting firms who work for us on a sub-contract basis.

Chemical Program Small

One thing that we do not have over here, which seems to be the mainstay of many American companies, is an elaborate spray program. There is hardly any spraying at all carried out in England, largely because there is no need for it. We have used small knapsacks sprays for dealing with outbreaks of Marssonina Salicifolia, which affected all our weeping willows badly some two years ago, but even this seems to have died out during the last year and the willows are returning to normal.

Allied Industries Growing

During the course of our development, we have noticed a similar development of allied professions concerned with visual amenity. Probably the most important are landscape architects who are now properly organized with their own institute and no major contract is undertaken without calling in one of their members.

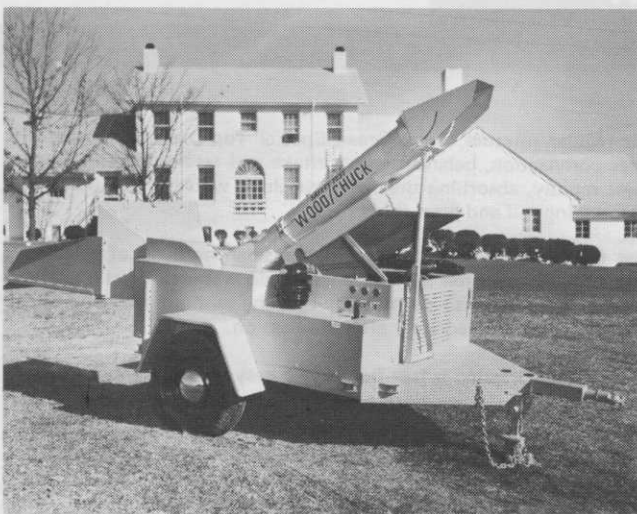
The movement of semi-mature trees also has been promoted vigorously, largely by our Nationalized Coal Board, who have used trees extensively in reclaiming open cast sites.

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meeting dates

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

46th International Shade Tree Conference, Hotel Flagship-Rochester, N.Y., Aug. 9-14.

New England Nurserymen's Association annual summer meeting at the Kempenaar Clambake Grounds, Newport, R.I. Aug. 12.

Pennsylvania Nurserymen's Association summer meeting at Better Homes Landscape Co., Route 22 and I-78, west of Allentown, Pa. Aug. 14.

Sixth Annual Turfgrass Management Conference, Hawaii Turfgrass Association, Punahou School, Honolulu, Oahu, Aug. 26-28.

39th Annual Turfgrass Research Field Days, University of Rhode Island, turfgrass fieldhouse, College of Resource Development, Kingston. Golf Course Superintendents Field Day, Aug. 26; Lawn and Utility Turf Field Day, Aug. 27.

Maryland Lawn and Garden Show at the University of Maryland, College Park. Aug. 29.

Michigan State University Northern Michigan Turfgrass Field Day, Traverse City Country Club, Sept. 9.

Virginia Polytechnic Institute Turfgrass Field Day at Blacksburg, Va., Sept. 9 and 10.

Helicopter Association of America eastern operators management seminar at the Holiday Inn, Media, Pa., Sept. 9-12.

Sprayorama '70 Pacific Northwest Pesticide Applicators, Inc., annual meeting, Thunderbird Motel, 1401 N. Hayden Island Dr., Portland, Ore., Sept. 10-12.

1970 Illinois Turfgrass Field Day and open house at the turf plots of Lincoln Avenue one mile south of Florida Avenue in Urbana, Sept. 11.

Turf and Ornamentals Day, Ohio Agricultural Research and Development Center at Wooster, Sept. 15.

University of Minnesota Technical College Fall Horticultural Day, Waseca, Sept. 20.

60th Convention, California Association of Nurserymen, Yosemite, Sept. 22-24.

California Park and Recreation Society fall Park Operations Workshops. 9:30 a.m. to 3:30 p.m. Region 1 — Sept. 29 at Civic Center at Los Gatos; Region 2 — Oct. 1 at Holmes Playground at First Street and Platt Avenue, Fresno; Region 3 — Oct. 1 at California State Polytechnic College, 3801 West Temple Avenue, Pomona.

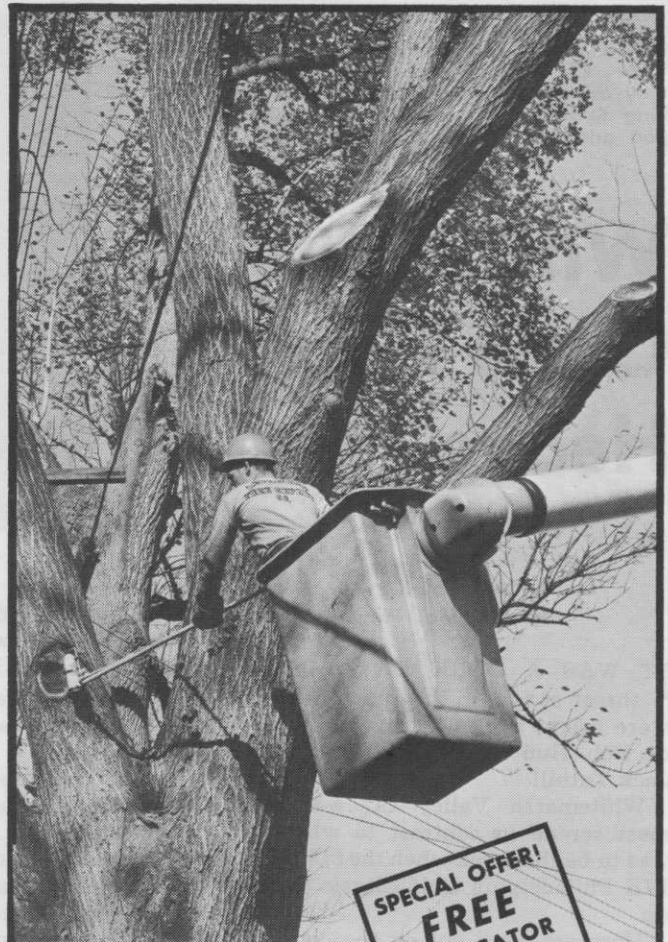
Roadside Development 29th Annual Short Course, Department of State Building, 65 South Front St., Columbus, Ohio. Oct. 5-9.

10th Annual Southern California Turfgrass Equipment and Materials Educational Exposition at Brookside Park, Pasadena, Oct. 14-15.

Texas A&M University 5th annual Industrial Weed Control Conference, on campus at College Station, Tex., Oct. 19-21.

10th British Weed Control Conference at Hotel Metrople, Brighton, Sussex, England. Nov. 16-19.

Ohio Turfgrass Conference and Show at the Cincinnati Convention Center. Dec. 7-9.



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A few weeks ago, golfers in the \$150,000 Philadelphia golf classic found the Whitemarsh Valley CC course in much better condition than they did a couple years ago. The reason: Fylking Kentucky bluegrass has all but replaced poa annua.



Whitemarsh Gives Poa Heave-Hoa

By PHIL LANCE
Philadelphia, Pa.

IT WAS A DARK DAY with a threat of rain in the air, but those were bright smiles dotting the faces of Bob Hunter, Paul Warren and Jack Tuthill.

Whitemarsh Valley CC was almost serene in contrast to what it was to be the week when the \$150,000 IVB Philadelphia Golf Classic came up.

Members were out on the course, workers were busy putting the finishing touches on the 6,670-yard layout and Hunter, Warren and Tuthill were smiling.

Quite a contrast to August of 1968 when the trio would have crawled into a hole if they could have found one large enough on the Chestnut Hill, Pa., course.

High humidity and high temperatures had burned out WVCC's soya Poa annua then and Hunter, as the course greens supervisor, Warren as the tournament director, and Tuthill as the PGA tournament direc-

tor, were sick.

However, it is different this year. Whitemarsh fairways are lush, its greens green and its roughs rough.

"It is in the best condition since the first grass back in 1963," Warren said happily. "That young man (Hunter) has done a great job, and the course is going to get better."

Hunter, in his third year at the club, wouldn't take all of the credit. "The weather plus the fact that the tournament is being played earlier in the season are the big factors," said Hunter.

"Why? It ended up so bad in 1968 that we ended up scalping the fairways. However, it did do one thing. It got us to thinking and doing something about it.

"The result is that WVCC initiated a three-year, \$30,000 tri-calcium arsenate program which eventually will kill all of the old fairway grass and build up the arsenate in the turf.

"It will be awhile before we derive the benefits of the program, but we'll never get a burn-out like

last year. Our new grass is Fylking."

Hunter and his staff have been following the specifications laid down by Tuthill and his assistants for this year's extravaganza.

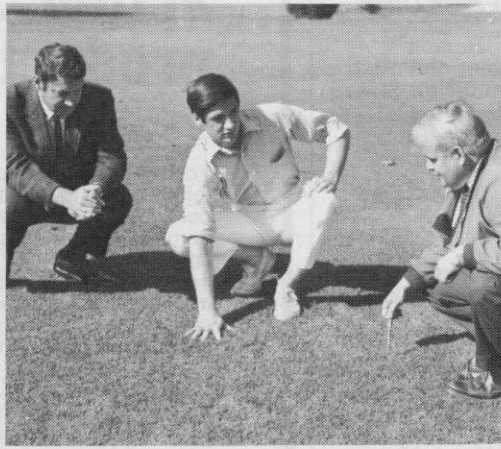
"We have lowered the height of the cut on the fairways from 1 inch to $\frac{3}{8}$ of an inch, while the rough, which we normally keep at 2½ to 3 inches, has been allowed to grow to 4 inches. If we get any amount of precipitation, it could go to 6 inches.

"In essence," Hunter concluded, "what we have done is make it easier for the player on the fairway and penalize further the player in the rough."

Superintendents of golf courses throughout the nation are tired of Poa annua and now to most, Poa annua is No. 1 turf enemy! They are tired because Poa annua is fickle. It fails when needed most—when stress conditions exist. Superintendents are sitting on a "keg of dynamite"! Whether ice smothering in winter or disease wilting in summer, the Poa annua can go within hours. The uncertainty of when and how much loss creates anxiety.

Most superintendents agree that Poa annua should be replaced with desirable grasses. There is much disagreement as to the method. Earlier many superintendents temporarily have instantly removed existing Poa annua by the "scorched earth" method. For example, with sodium arsenite.

Other superintendents have more slowly reduced and removed Poa annua in one calendar year with either powder or granular tri-calcium arsenate. As Poa annua fails, the bare areas are more obvious and time is required before reseeding permits desirable grasses to spread. However, when the clubhouse is remodeled, portions are closed and inoperative for months.



Bob Hunter, center, at Whitemarsh shows the results of the turf program recommended to him by representatives of Chipco Turf Products. Phosphorous was eliminated from the fertilizer program, and tri-calcium arsenate was applied to build up a toxicity to poa annua.



The members expect and accept an unsightly mess until improvement is accomplished.

When the rapid method is employed, some thin open areas exist but are under play—which is still maximum service to the golfer.

Most turf experts such as Dr. Bill Daniel of Purdue, Charlie Wilson of Milwaukee Sewerage Commission and Jim Holmes, formerly of the USGA Green Section, believe in a slow, graceful program that gradually eliminates *Poa annua*. Develop a model—start a program on one or more fairways—then expand.

Here is the program followed by Whitmarsh Valley Country Club:

1. *Drain low areas.* Improve drainage with trenching and vertical slitting. Many superintendents have installed narrow slit trenches filled with pea gravel and capped to overflow with sand. All low pockets and wet areas must be drained. Wet soils increase arsenic toxicity and favor *Poa annua*.

2. *Correct soil acidity if needed:* Apply lime to greens or fairways if under a pH of 6. Arsenicals are less available at low pH or at pH above 7.8. Excess calcium carbonate tends to reduce water soluble phase of arsenate. Allow two to four weeks between lime and 48% tri-calcium arsenate granular applications. Most midwest soils do not need lime. Some eastern soils do. Get soil tests before using.

3. *Eliminate phosphorus in fertilizer program:* Use no phosphorus or as little as possible until *Poa annua* is under control. Use very little phosphorus after toxicity is achieved. Phosphorus will replace the arsenical and *Poa annua* will again thrive. (Less soluble phosphorus in organic sludge does not override arsenic toxicity). Use am-

ple nitrogen and potassium, for example, a 2-0-1 ratio.

4. *Aerate:* Dilute, reduce and remove thatch by deep vertical grooving. Aerify to make room for new growth. Bring up some soil, get seed against soil. Do not attempt to overseed onto a heavy thatch.

5. *Overseed often:* Any time at light rates. Repeated attempts to start new seedlings should be made until uniform survival is secured. Seed at rates from 5 to 20 pounds of seed per acre. Seed any time, treat at light rates of arsenic any time. Seedlings will usually survive if rates are not more than 8 pounds of 48% tri-calcium arsenate granular per 1,000 square feet.

6. *Vary application rates according to existing conditions:* Apply from 4 to 12 pounds of formulation (of 48% tri-calcium arsenate granular) per 1,000 square feet, twice a year in the spring and fall. Each application depends upon the percentage of *Poa annua*, available phosphate, soil type and pH of the soil. Apply after the frost is out of the ground and then again between Aug. 15 and Nov. 15. It is not wise to apply on frozen ground.

7. *Achieve *Poa annua* toxicity:* Adequate arsenic toxicity to *Poa annua* depends upon the soil texture, available phosphate and soil pH. This varies from 16 pounds to 30 pounds of formulation per 1,000 square feet. Light sandy soils low in phosphorus with little "buffer capacity" require less arsenical to reach toxicity.

8. *Maintain toxicity to *Poa annua*:* Toxicity may be maintained with 2 to 4 pounds per 1,000 square feet applied annually either in spring or fall.

9. *Emergency use of liquid fertilizer:* $\frac{1}{8}$ to $\frac{1}{4}$ pound of P_2O_5 per 1,000 square feet or 5 to 10 pounds per acre may be used to improve *Poa annua* for emergency cover if needed. This is a check valve if *Poa annua* is dying too rapidly. (Do not use regular granular phosphates because of residual effect in the soil.)

10. *Arsenic toxicity:* *Poa annua* sensitivity to arsenic is favored by short days, cloudy days with low light intensity and cool weather. Target applications to provide arsenic toxicity for early fall and early spring benefits.



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A CHICAGO engraving executive sprinkles his private pond with blue water.

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Kenneth V. Schmid, president of

Jahn & Ollier Engraving Company, knows that a pond or small lake can make or break a place—depending on its condition. He had seen how just a small body of water could be the finishing touch to beautifying his Spring Lake Farm, or the ruination of all other attempts to beautifying the setting.

Ponds by their very nature are prime algae beds. Uncontrolled growth of algae can make them unusable for fishing and water sports, and downright distasteful to look at.

Writing to Applied Biochemists, Inc., Milwaukee, Wis., Schmid said: "I have been using your product for one year and I have had great success with it."

"I started out with the first application using a 200-gallon John Bean sprayer, at one part to 100 gallons of water and spraying the surface with a high-pressure spray," Schmid said.

"To supplement the water in the pond, I have sunk a well and run underground plastic tubing to the center of the pond with an upright pipe in the middle with a Buckner sprinkler attached.

"To utilize the proper distribution of Cutrine in somewhat a drip method, I installed a gas cock at the bottom of an 18" by 1 1/4" pipe, to adjust the amount of flow through the pipe.

"On top of the 18" pipe, I put a 1 1/4" gate valve with a cap."

To make an application of Cutrine, Schmid said, "I open the gate valve and put 18" of Cutrine in the standpipe, close the gate valve cap, and start my submersible pump.

"This could be done in any size pond, even using a garden hose with a pipe and sprinkler."

Citrine is an algaecide-fungicide based on a "harnessed" copper sulphate, according to Donald E. Seymour, president of Applied Biochemists, Inc. It's harnessed, he said, because it can eliminate all forms of algae at rates that are not toxic to humans, animals or fish.

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Kenneth V. Schmid, a Chicago engraving executive, ran plastic pipe to the center of his Spring Lake Farm pond then attached a Buckner sprinkler head to spread Cutrine algaecide.

climates. Before application, the algaecide should be pre-mixed with the water at least 9 to 1, then sprayed evenly. The algaecide is heavy and will sink where it is sprayed.

There are no swimming restrictions, said Seymour.

Citrine is effective, he added, any time algae is growing and the water is above 60 degrees. The algaecide itself does not remove oxygen from the water, but he advised caution in treating heavy algae infestations. Decomposition, he explained, of heavy algae growth could cause oxygen depletion severe enough to bring about fish suffocation. Where heavy algae growth exists, he advised treating one-half of the area, then waiting one week before treating the other half.

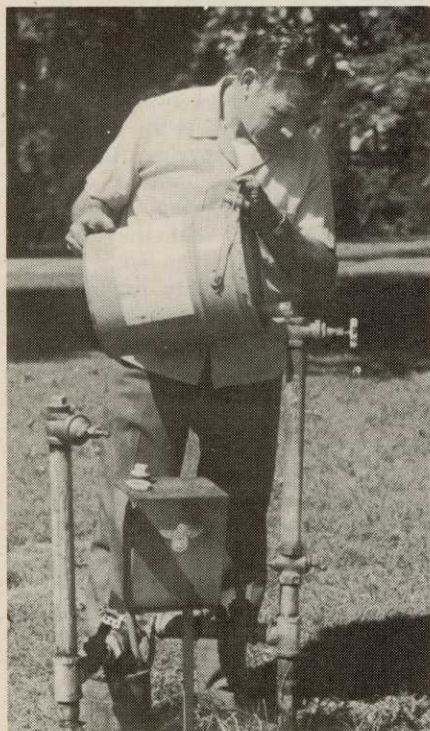
Citrine can be corrosive, therefore spray equipment should be washed thoroughly after use, he said.

The algaecide, according to Seymour, is suitable for use in ponds, lakes, pools, rivers, potable water, fountains, trout streams, cooling towers, irrigation ditches, and water intakes.

plex, he continued, which, unlike copper sulphate, remains in solution (even in hard water) and is absorbed by the algae. After absorption, he added, the algae withers and dies, leaving no chemical residue.

Citrine also is an effective fungicide, which controls many fish diseases, such as fin-rot in trout, he said.

Application recommendations for Cutrine are 2 gallons per surface acre in the early spring and 3 gallons in mid-summer in temperate



Schmid determined that the amount of Cutrine his pond needed per application would fill 18 inches of 1 1/4" pipe. A gas cock at the bottom of the 18 inches of pipe regulates the flow. The pressure source is a submersible pump.



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SP 70-4

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How Cal-Turf Moves Sod

WANT TO BUY a front yard?
Or a back yard? Or a golf course, football field, park?
They're all available with a call to a company named Cal-Turf near Camarillo, Calif., about 60 miles north of Los Angeles.
Cal-Turf is a sod-growing company that supplies about 50 lawns per day to customers throughout

Southern California, as well as in Nevada and Arizona.
Sod is obtained from more than 500 acres of beautiful lawns cut in a three-inch-deep mat 15 inches wide by four feet in length for trucking to the job site.
Sod growing is not a unique business, but Cal-Turf can be classified as a unique entity in the business

because of its highly efficient methods of operation.
Illustrating Cal-Turf's progressive business practices is a radio system connecting every truck in the fleet with the headquarters office as well as three sales yards in Southern California. Thus if a driver gets lost or a truck loses a wheel, assistance is available with a flick of the switch.

Many sod-growing companies continue to use horse-and-buggy techniques such as hand labor in loading and unloading. Cal-Turf, on the other hand, utilizes a fleet of 14 rough terrain fork lifts that load trucks in 20 minutes, are towed to the job site where they unload the sod, then are towed home for another job.

Paul Ledig, sales manager, estimates each fork lift is the equal of a five-man crew. Figuring five hours per round trip to deliver a lawn while paying each man two dollars per hour, savings with the fork lift theoretically amount to some \$11,000 per year—considerably higher than the cost of the unit. In practice, it doesn't work out this well because of operating and maintenance costs, but the units pay for themselves many times over during their working lifetime.

Cal-Turf's fork lift fleet is manufactured by Champ Fork Lift Corporation at El Monte, near Los Angeles.

"Fork lifts take a terrible shaking every time they're towed on a high speed road, and most of them literally shake themselves apart," Ledig said. "Champ is about the only one we've found that can take the pounding and come back for more year after year."

In addition, Ledig said, the units

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