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broadleaf weeds

Provides maximum safety

TRIMEC, properly applied, is harmless to grasses, trees, flowers and ornamentals because root chemical absorption is minimal. All components are biodegradable.

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“ I've used Trimec Bent for quite a while and it takes care of almost all my broadleaf weeds, particularly English Lawn Daisy, which is a tough one to get rid of. In problem areas I spray spring and fall. Touch-up work is done in the spring.

Ron Zwiebel, President
Chem-Care Lawn Service of Alabama, Inc.
Birmingham, Alabama.

... of all the broadleaf weed controls that I have tried, I think TRIMEC is the finest broadleaf herbicide on the market today.

Keith Dones, Agronomist
Department of Parks
Louisville, Kentucky



TRIMEC has been thoroughly field tested and proved in all parts of the United States, in all kinds of weather. Its effectiveness in cool 50°-range temperatures is firmly established, allowing early-spring and early-winter use. TRIMEC is the best available weed control for golf courses, lawns, cemeteries, along highways, on sod farms, in public parks — wherever immaculate turf must be maintained. *The one best way to be convinced is to test it. Test it yourself.* TRIMEC, the king of broadleaf herbicides.

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He Treats Trees Like People

Jimmy J. Harrod Sr., who owns and operates C & H Tree Experts in Fort Worth, Texas, is a warm-hearted, down-to-earth arboriculturalist who treats trees and plants like they were people.

One of the few people still around today who believe a handshake is as good as a contract, Harrod punctuates his almost constant dialogue with colloquialisms that will sometime hit you between the eyes like a migraine. He will tell you, for instance, that the best way to get rid of bag worms is "with a hammer and sidewalk," but he will further explain the proper sprays to use if you prefer.

Harrod has worked in a supermarket, operated a root beer stand, washed dishes, sold tobacco, and been a sky diver and a personnel consultant. He got his first taste of arboriculture while attending the University of Heidelberg as a foreign exchange student. He started out by taking general courses just to get an education. It was during his sophomore year that Harrod met the forest master of Germany's Black Forest.

"This old man knew those trees just like they were his kids," Harrod told WEEDS, TREES & TURF. "When they had a wind storm, they got someone out there raking leaves and cleaning it up. It is really a cared-for place." But it was not until some years later when he met who

'Why aren't you in the tree business? You have the education for it, and you can sell a row boat to a desert rat.'

was to be his future partner in business that he realized there was money to be made treating trees.

"I got to talking to this guy one day and he started putting his terminology on me. I just talked back in the same language. He said, "Why aren't you in the tree business? You have the education for it, and you can sell a row boat to a desert rat." So a partnership was formed six years ago. Harrod since

has acquired all interest in the company.

"I sold nearly everything I owned to buy equipment, spending it for chains, saws, ropes, spurs, climbing gear and insurance," he said. "I even sold my wife's Volkswagen." Today, his equipment is worth around \$60,000, including trucks, chippers, a company car, two different spray rigs, a jeep, \$3,000 worth of chain saws, and \$1,000 in hand saws. At times he has had as many as 15 men working for him. "The personnel factor is one of the biggest problems there is. If I had the key people I could get more business than I could take care of. A lot of guys are going out of business because they can't get help.

"But they have to do it my way," he said. "There is a proper way to do the work. Some people leave brush in the yard or stuff in behind shrubs. We don't do that. If we take it off, we rake that yard when we are through. If the chipper makes a mess in the street, we sweep the street up."

Harrod attends professional conferences "just to pick the minds

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of the older members who have been in trees so long they are bent over like gorillas." He said, "I like to find out what they did way back when there wasn't all the modern equipment and chemicals around to combat disease of trees. I like just listen-

Harrod attends professional conferences 'to pick the minds of the older members who have been in trees so long they are bent over like gorillas.'

ing to them." And he makes good use of the information obtained from these conferences.

Harrod's concern today is for the consumer. "The consumer is getting ripped off by the so-called garden supply centers around the country," he said. He feels there are no competent employes in these centers to give proper advice to the consumer with a garden problem. "If you go into a discount center and

Cement, divided with felt soaked in creosote, fills about five feet of the main trunk of this old oak tree. Harrod says the tree has been healing for about 25 years.

look at the quality of plants and ask pertinent questions about certain diseases, see if you can get an answer. If you buy a spray, take it home and apply it and it doesn't work, the tendency is to go back and buy something else. No one can explain proper sprays or methods at these places," he said.

One problem encountered by Harrod is when he sprays a tree, the customer expects the trees or plants to be free of insects for the entire year.

"With the rains we had last year, for example, that is impossible" he said. "They want us to come out and spray one time, and they they want us to come back and spray 10 times more for free. We cannot do that. You need to spray from three to eight times a year, with normal weather."

Some clients expect Harrod to come out to their homes with a one-shot solution that is going to make a tree that has been dead three weeks come back to life. "And we cannot do that. On the other hand, some call me in time to save a tree, but they want to know if I can guarantee

that I can save the tree. That is just like asking a doctor if he can guarantee saving a life."

He does not claim to be a miracle-worker. "I know my limitations," he said. "All I want is

Colloquialisms that hit you between the eyes like a migraine — the best way to get rid of bag worms is 'with a hammer and a sidewalk.'

to have the best service available to people who really have a problem — to go out and do all I know — prune their trees properly, feed them properly and shape them." He says he may not have all the solutions to plant problems, but if he doesn't, you can bet he knows where to go to get the right answers. "I want to retire knowing that I have done the best I could have possibly done," he said. □

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Robert DePencier, Golf Course Supt.
Westchester Country Club Rye, N.Y.



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Ronald C. Boydston, Golf Course Supt.
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Fertilizing Economically

Soil condition, environmental conditions, management program and turfgrass requirements are as important as cost per unit of fertilizer.

By Dr. James A. McAfee
Texas Agricultural Extension Service
Renner, Texas

When discussing the economics of a fertilizer program, we usually spend most of our time talking about cost per unit of fertilizer. While this is an important point, there are several other factors which affect the economics of your fertilizer program. Factors such as soil condition, environmental conditions, management program, turfgrass requirement, etc., will all have a large effect on how efficiently your fertilizer is being used. This is one of the major points I would like to cover — getting the most efficient use of the fertilizer applied. Learning to combine the best buy cost wise along with maximum efficiency is what every turf manager should strive for.

The chemical, physical, and available nutrient level of the soil in which the turfgrass is grown will have a large effect on your fertilizer program. Of the soil chemical factors, soil pH (soil reaction) will play a big role in how efficiently the applied fertilizer is being used by the plants. Soil pH is a term used to express the acidity or alkalinity of the soil. A pH of 7.0 is considered neutral, while anything below 7.0 acid and anything above 7.0 alkaline. Soil pH is expressed in logarithms. What this means is that a pH of 6.0 is ten times as acid as a pH of 7.0 and pH of 5.0 is one hundred times as acid as a pH of 7.0. This is why it is so important that the pH is not allowed to become

highly acidic. At this point, it takes considerably more time and limestone to neutralize the soil. (Amount of lime applied to adjust pH should always be based on results of soil tests. Most states have facilities for conducting these tests.)

Acidic or alkaline soil conditions affect nutrient uptake in many ways. Under acidic soil conditions, much of the phosphorus in the soil is unavailable for plant use. The phosphorus ion forms highly insoluble complexes with iron and aluminum ion which cannot be absorbed by the plant. Root growth, especially root hairs, is greatly limited under acidic conditions. This reduces the amount of roots for nutrient uptake. Acid soils leads to thatch build-up. Activity of microorganisms which break down thatch is reduced under acid soil conditions.

Under both alkaline and acid soil conditions, the activity of soil microorganisms which are involved in nitrification, ammonification, nitrogen fixation, and other nutrient transformations are reduced. This includes release of nitrogen from ureaformaldehyde as well as the organic complexes in the soil.

A good means of illustrating the effect of soil pH on fertilizer efficiency is the following example: At a pH of 5.0, 33% of N-P-K in a complete fertilizer is not available for plant use. At a cost of \$180 per ton for the complete fertilizer, 33% of the money spent or \$59 per ton is

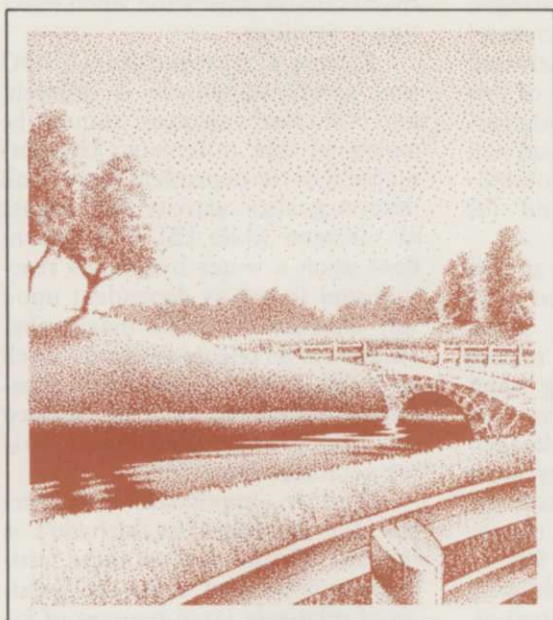
wasted. By simply maintaining the soil pH at correct level, this waste can be greatly reduced.

Physical condition of the soil will also have an effect on nutrient absorption by the turfgrass. Root growth is restricted under soil compaction. Some nutrients, especially phosphorus, are very immobile in the soil. Roots have to intercept these ions and with restricted root growth, chances of intercepting a phosphorus ions is reduced.

Waterlogged and/or compacted soils reduce plant respiration. Nutrient uptake is an energy process and plant respiration is necessary to produce the energy required for nutrient uptake. Therefore, under waterlogged or compacted soil conditions, efficiency of fertilizer use is reduced because of restricted root growth and reduced plant respiration. Provision for proper soil drainage and good cultivation practices (aerification) can thus help to increase efficient use of applied fertilizer.

Another means for more efficient use of fertilizers is by selecting the proper fertilizer analysis for your area. The fertility level for N-P-K will vary for different soils. Research has found that more turfgrass plants used on golf courses grow best at N-P-K ratio of 3-1-2 to 4-1-2. Application of supplemental nutrients should be based on supplying this ratio to the plants. Also, if soil tests indicate high to very high

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and bermuda are tolerant. But to crabgrass, nutsedge, and dallisgrass, it's deadly. The other herbicide is Phytar[®] 560, a non-selective liquid "trimmer" for complete top kill along sidewalks, fences, sand traps, and other hard-to-mow areas. For an effective, complete weed control program, simply ask for Ansar and Phytar. See, we've made your job a little easier already.



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levels of phosphorus and potassium on those areas where clippings are not removed, then nitrogen only may be applied. Thus by determining soil fertility level through soil tests, a turf manager may be able to save money on purchase of his fertilizers. All fertility programs should be based on results of soil tests. The difference in cost for supplying 4.0 lbs. per 1,000 sq. ft. on fairways for 18 hole golf course using ammonium nitrate vs. 18-18-18 at present prices is approximately \$1,300. If soil levels of phosphorus and potassium are high, this money could be saved or diverted to another project.

A turf manager should be aware of the different types of fertilizer carriers available and how they work. This is especially true for the three nitrogen carriers. These carriers work differently and to obtain the most efficient use of them, a turf manager must be aware of their characteristics.

First class of nitrogen carrier is the inorganic nitrogen carriers. Two examples of this type of fertilizer are ammonium nitrate and ammonium sulfate.

Important characteristics of this type nitrogen carrier are: (a) high water solubility, (b) rapid response, (c) high foliar burn potential, (d) short response, and (e) less cost per unit N.

Application of large amounts of these fertilizers should be avoided on soils high in sand content. This could lead to a high degree of leaching. However, under most fairway conditions, loss of nitrogen due to leaching is reduced considerably. Also, application of these fertilizers should be avoided when leaves are wet or on hot humid days. These fertilizers should always be watered in thoroughly after application to reduce the chance of foliar burn.

Due to the short response period, lighter and more frequent applications of these fertilizers will be required. While labor costs will be higher for these type nitrogen fertilizers (more applications), the lower cost per unit N will more than offset this difference. The difference between ureaformaldehyde vs. ammonium nitrate at 4.0 lbs. per 1,000 sq. ft. on bermudagrass fairways for 18 hole golf course is approxi-

mately \$3,000. Research has shown that with proper application of ammonium nitrate the same quality turf can be grown with the synthetic organic or natural organic fertilizers.

The second source of nitrogen carriers used on turf is the natural organic nitrogen carriers. Activated sewage sludge is an example of this type of carrier. Some of its characteristics are: (a) dependence on soil temperature, (b) low water solubility, (c) medium release, and (d) higher cost per unit of N.

These fertilizers need a soil temperature above 55° for soil microorganism activity to break down organic complex and release the nitrogen. In early spring when Bermudagrass needs nitrogen for early growth, release of nitrogen from these fertilizers is very slow due to reduced microorganism activity in the soil. These soil microorganism are most active at 90°.

With the low water solubility and reduced foliar burn potential, larger amounts of fertilizer can be applied per application. The response period for these fertilizers is intermediate between the inorganic carriers and the synthetic organic carriers. However, under high soil temperatures, nitrogen can be released at a fairly high rate by some of the natural organic carriers. Over application of these materials in summer months could lead to excess growth problems.

The third class of nitrogen carriers used on turf is the synthetic organic nitrogen carriers. There are basically two kinds: (a) primarily water-soluble, and (b) primarily water-insoluble. An example of water soluble synthetic organic nitrogen carrier is urea. This carrier reacts much like the synthetic inorganic nitrogen carrier. Ureaformaldehyde and IBDU are examples of the primarily water insoluble carrier. These compounds are considered slow release nitrogen sources.

Fertilizers containing ureaformaldehyde and IBDU are what we often refer to as specialized fertilizers for use in high maintenance turf. These fertilizers were developed after many years of research and offer several advantages. Some of these advantages are:

(a) reduced risk of foliar burn, (b) better spreadability, (c) less fire hazard, and (d) longer residual response. While the cost per unit N is much higher for these fertilizers, advantages listed above must be taken into consideration when selecting a fertilizer.

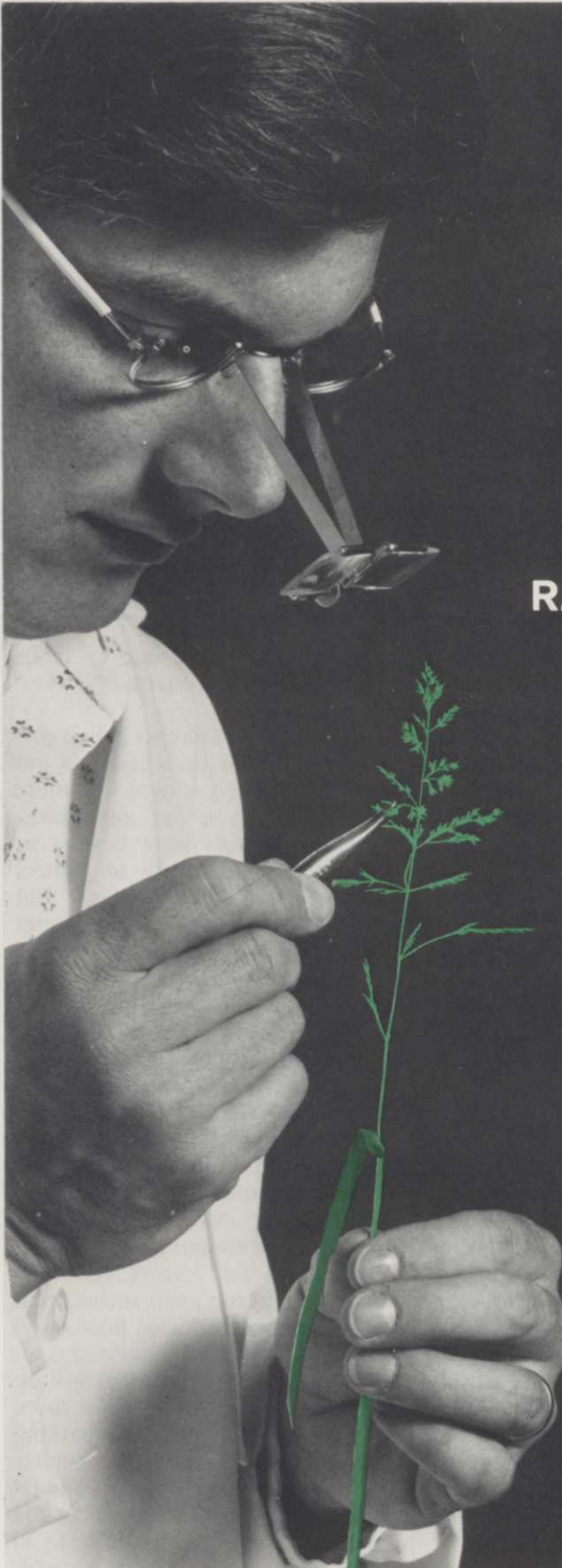
Release of nitrogen from IBDU and ureaformaldehyde is different and the turf manager should be aware of this difference. Ureaformaldehyde is dependent upon soil microorganism activity for release of nitrogen while IBDU is dependent upon a water hydrolysis reaction and is not as dependent upon soil temperature. This means that IBDU will be released in cold as well as warm temperatures while ureaformaldehyde will only be released during warm weather, soil temperature above 55°.

Another important characteristic for the ureaformaldehyde's is that the effective use of these fertilizers is dependent upon the build-up of relatively large reserves of insoluble nitrogen in the soil. To get maximum use of these fertilizers may require several years of application.

Selecting the proper fertilizer for use will depend on several factors. Turfgrass quality desired, environmental conditions, cost, cultural practices, and growth rate desired will all influence the turf manager's choice. He must be aware of the different characteristics for fertilizer carriers in order to obtain maximum efficiency from his applications. In most cases, more than one type of nitrogen carrier is used. Maximum fertilizer efficiency will depend on using the proper fertilizer carrier, at the correct rate, and when needed by the plants. As one can visualize, this is not an easy task.

Listed below are three important factors for providing a sound, economical fertilizer program:

- (1) Provision of good chemical and soil conditions for proper nutrient uptake by plants.
- (2) Awareness of the different fertilizer carriers and how to use them properly.
- (3) Applying supplemental fertilizer at the correct ratio, rate and time. □



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Guaranteed Results Build Custom Applicator's Business

Referrals are the best salesman for Weeds, Inc., Yeadon, Pa. The company works on the principle that if you do a good job and stand behind it, soon you will have an outstanding reputation. The organization is one of the nation's largest commercial applicators with offices also in Baltimore, Richmond, Elizabeth, N.J., Pittsburgh, Toledo and St. Louis.

"We guarantee our work for the whole growing season and automatic follow-up checks are done to see how well the spraying treatment did," explains Earl Antes, co-owner with John Woronick.

The firm specializes in commercial industrial spraying such as railroad yards, railroad rights-of-way, oil tank farms, and inventory areas.

"We have found many firms try to do their own spraying with poorly trained personnel," states Antes. "Sometimes they don't even know what material they have been using. They will often show us a half-empty drum with a skull and crossbones painted on it but don't have the slightest idea what is inside."

Antes believes companies are just now becoming interested in having professionals handle their spraying needs on a year-to-year basis under contract. He says OSHA as well as environmental concerns seem to be encouraging this interest.

For the first year and a half of employment, Weeds, Inc., employees are considered to be under training. After that, they can accept ma-

job responsibility for their work and require less supervision. "We employ our people full-time, year-around," explains Antes. "Seasonal or part-time help means more risk because your personnel won't have the necessary training to do a trustworthy job. We want to provide the best possible service, fully guaranteeing our work, and it takes well-trained people to achieve this."

Though Weeds, Inc., has a sales staff, the basis for the rapid growth of the company is referrals. "We have plans to expand into the South and are already doing some work in Florida," says Antes.

"Companies find out about us from other companies, so the word is spread and our business just keeps growing." Some of the Weeds, Inc., employees are both salesmen and applicators. They sell during the winter months and operate the spraying units during the growing season.

Antes said the firm is getting very good results with a relatively new non-selective herbicide. "It is consistent and very reliable. We think it is the best thing for Johnsongrass and other deep-rooted perennials. Before using this new herbicide, the firm relied heavily on various systemic herbicide combinations to control perennial growth. Antes said the herbicide does an excellent job of eliminating problem perennial weeds either before or after soil sterilants are applied. He said by using the herbi-

cide on perennials, follow-up treatments have virtually been eliminated.

He said the initial per gallon cost is higher than other chemicals but that at the rate it is used it is more economical on a per acre basis. "Other chemicals were costing us \$125 to \$130 per acre to control Johnsongrass," says Antes, "But this herbicide's cost is only about \$55 to \$65 per acre."

Antes says his firm has never had any problems with application or safety. "It is a reliable and consistent product which we appreciate because of the guarantee we have on our service." Its low level of toxicity makes it much less hazardous to humans and animals than many other weed control materials.

Roundup, Monsanto Co., is cleared for non-agricultural or industrial uses for 2 years. It can be used on non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-ways; petroleum tank farms and pumping sites; roadsides, storage areas, fence rows, manufacturing plant sites; parking areas; airports; and other similar uses. It will control many annual grasses and broadleaf weeds at the rate of one to 1 1/2 quarts in 20 to 30 gallons of water per acre as a broadcast spray. It will control many perennial grasses and broadleaf weeds at the rate of two to four quarts in 20 to 30 gallons of water per acre as a broadcast spray, the company told WEEDS TREES & TURF. □