North Shore and several trees, strategic to play, have had to be cut down.

Two years ago, Dinelli stepped up replacement of trees that had had to be removed. Nearly a hundred five- and six-inch maples, locusts, lindens and hackberries were planted in 1967 and 1968 to replace the dead elms. Trees at North Shore are sprayed twice a year with DDT and one-quarter of the 2,700 trees on and adjoining the course are trimmed each year as part of a continuing pruning program. In the last two years the club has spent $16,000 on tree maintenance.

Like most superintendents, Dinelli is wary of the anti-fungal products that have been introduced in recent years. There is little evidence that they have been very effective in arresting the spread of Dutch elm disease. Their toxicity is feared in many quarters. (See "DDT Panic," June GOLFDOM, page 42.) The North Shore superintendent has reached the conclusion that more dependence should be placed on nature to check the blight. As far as sanitation, it is Dinelli's opinion that as little time as possible should be lost in removing dead trees. If they are allowed to stand until the end of the season, when it is more convenient to dispose of them, surrounding trees may become infected. Elm trees often die in clusters, undoubtedly because of the delay in getting rid of those that die first.

GlenView CC and Evanston CC, both of which are fairly close to North Shore, had about the same loss experience in 1968 as the latter club. It was the highest either of these clubs have recorded since the onset of the blight six or seven years ago. Westmoreland CC, another in the immediate North Shore area, lost about 3 per cent of its elms in 1968, twice as many as it had ever lost before. Julius Alspaugh, the superintendent there, has been using a helicopter service to spray his trees. He and about 10 other superintendents in the Chicago district, who use an airborne spraying service, say it is not only far more effective than ground equipment, but about half as expensive.

Fred Opperman of Elmhurst CC, a Westside club, lost about 4 per cent of his elms in 1968, as many as he lost in five previous seasons. Wes Updegraff of Oak Park, which is near Elmhurst, lost about 20 trees, rather alarming considering that an average of five had died each year in the last five years. Updegraff doesn't spray, but gets rid of dead trees immediately, grinding up as many of their roots as possible. Both clubs are in the middle of tree replacement programs.

Opperman favors different varieties of maple, hackberry, ginkgo and oak. He plants two-inch trees, figuring that in eight or 10 years they will catch up with the more expensive five- and six-inch trees that many superintendents prefer. Updegraff plants mainly red and pin oaks, which are prac-

continued

What's being done

The Elm Research Institute, headquartered in Waldwick, N.J., is a non-profit organization dedicated to the preservation of the American elm. It offers to its members services which range from counseling on elm care to field testing of new products for elm disease control. It will furnish stocks from its nursery for replanting for the cost of packing and mailing. It also provides, when requested, member groups with a talk and color film on elm conservation and maintains a library from which members can draw material.

One of the major ways the Institute combats Dutch elm disease is by giving research grants to entomologists and plant pathologists. Currently, four universities are researching the problem through grants made by the Institute:

Cornell University with a grant of $75,000 is studying and indentifying characteristics of disease-resistant strains as a prelude to a program of selective breeding of an American elm with natural resistance to Dutch elm disease.

The University of Wisconsin, which received $30,000 from the Institute, is doing research on altering the chemical code through which certain tree species either attract or repel feeding by specific insects.

Michigan State University with $3,000 is breeding tiny wasps, imported from Europe. The hatch larvae or pupae feed exclusively on the larvae of the elm bark beetle.

Iowa State University with a grant of $5,000 is studying the responses in the tissue and chemistry of elms to infection by the pathogens of Dutch elm disease.

A film that will dramatize the urgency for support of the Institute's crash program is currently under production. It will follow the westward sweep of the disease, present current methods of coping with the disease and dramatize the effort now being made under the Institute's auspices.

Special stamps are available in any quantity from the Institute. One stamp costs 10 cents; sheets of 18 stamps are $1; pads of 12 sheets (196 stamps) cost $10. Write: Executive Secretary, Elm Research Institute, 60 W. Prospect St., Waldwick, N.J. 07463.

These are only a few of the current services and programs in which the Elm Research Institute is engaged.

tically immune to disease and rot.

The story at Southside Chicago clubs is pretty much the same as the Westside story. A survey shows that more trees were stricken in 1968 then ever before, with the average loss running a solid 3 per cent. At most Southside clubs this means about 20 trees. At Ravisloe CC, where Roy Nelson is the superintendent, 18 elms were removed last fall. He estimates there are about 600 elms on his course, considerably less than the number of oaks. Nelson doesn't spray because he thinks spraying methods are inefficient. He further points out that clubs that do spray haven't had any better luck in containing the beetle than Ravisloe. He is another who advocates quick sanitation. He has had a replacement program going for the last three years, planting about 100 silver and hard maples, ash and linden to fill in where elms have died.

Does Nelson feel that there should be a heavy swing to oaks as a replacement for dead elms? Definitely not. Oaks apparently are living up to their reputation for being mighty and durable, but if there was to be a glut of them they'd probably go the way of the dying elms. "Part of the trouble we're having with elm is due to overgrowth of the species," Nelson says. "Nature may be thinning them out for us and restoring a proper balance. We have enough oak trees now and should be planting other varieties. In recent years there has been talk of an oak wilt that may turn out to be as devastating as the Dutch elm blight. Maybe it would be wise to hold off on oaks for a while and see what is going to happen."

Some superintendents feel that Dutch elm disease has gotten out of control because municipalities and other government agencies haven't taken proper measures to check it. Spraying in some localities has been completely neglected, or at best is sporadic. In some communities dead elms have been allowed to stand for several years before being removed. One course on the west side of Chicago, which backs up to a forest preserve, has had heavy losses, according to the superintendent, because the county had done little or nothing to combat the blight. "If they'd remove the dead trees over there," says the superintendent, "it would make it a lot better for us. They wouldn't have to spray—just remove the beetle."

The county's reply is that in deep wooded areas it is too costly to take the preventive spraying measures necessary to protect the elms. And, removing the dead trees is impossible because of a lack of funds.

The indictment of municipal and county agents by the superintendent is not a blanket one. The village of Homewood, near which Ravisloe CC is located, is doing a good job of trying to check the disease spread. According to Roy Nelson, the city has a spraying program and it cuts down the diseased trees as quickly as it can get to them. "What shouldn't be overlooked," Nelson points out, "is that it takes a lot of time for the towns to certify that a tree is dead, and a good deal of red tape is involved before permission can be obtained to cut down trees that have died."

Talk to any municipal official and he'll tell you that it takes adroit budget maneuvering to provide for tree maintenance. Taxpayers are generally aware that trees are dying, but they can't figure why it costs money to remove them. With most towns and cities, tree care traditionally has been extracurricular to the work that a department such as public works or park and recreation performs. The attitude always has been, if it gets done—fine; if not—don't worry about it. The Dutch elm plague should have changed this attitude in recent years, but in most communities it hasn't.

The Village of Glen Ellyn, located about 30 miles west of Chicago, like most towns and cities is doing what it can to suppress the blight with limited funds. On a villagewide basis its record is as good or maybe slightly better than that of surrounding communities. About two years ago it put into effect a test program that has been widely praised but not widely copied because it is costly to carry out. On the south side of Glen Ellyn a mile square control area has been established. Recommended practices for combating Dutch elm disease are carried out. Trees are sprayed with DDT twice a year and when an elm tree dies, it is removed as quickly as the public works department can get to it. The result has been that the loss has been restricted to less than one-half of 1 per cent, even in 1968.

There is no known cure for Dutch elm disease. Researchers, foresters and arborists agree on this. One Chicago chemical company that carried on research of the disease for several years backed off about a year ago, conceding the beetle was too much for it. The anti-fungal products it developed were too toxic to put on the market and no effective way of treating trees with them was found. Determining critical dosages for the different products also proved to be quite tricky.

So, until the beetles become surfeited or a curative found, it looks as if Dutch elm disease is going to be around. Superintendents apparently are doing as much as they can to live with it and, at the same, are containing it by fighting it where and however they can. Maybe 1968, which was excessively dry around Chicago in the early part of the year, was the peak year for the disease. And, possibly as Roy Nelson has suggested, the beetles are doing man a favor by cutting back the elm population to what nature has intended it to be. □

Fertilizing While Irrigating: A Reality?

Doggett Fison Company has developed a way of injecting water soluable fertilizers into both manual and automatic irrigation systems. If the claims of the company are correct, it could mean savings in time, labor and money, and also give superintendents greater control over the growth rate, color and texture of turf

By VINCENT J. PASTENA
Editor, GOLFDOM Magazine

The idea of fertilizing while irrigating would seem an obvious and logical means of saving time and labor in the care of any plant life. Indeed, the concept has existed for three decades and has been applied in the flower growing and nursery industries since the forties.

However, the many and varied problems of turf maintenance, plus the lack of sophisticated irrigation systems, have delayed the feasibility of wide-scale implementation of the method on golf courses—that is, until now, according to Albert K. Doggett, president of Doggett Fison Company, Moonachie, N.J.

The firm's Hydro-matic Div. has put "the first fertilizer injection system on the market for turf maintenance that can be utilized with any type of irrigation system—automatic, semi-automatic or manual," says Doggett.

Doggett Fison, a wholly-owned subsidiary of Fison Corp. U.S.A., is no newcomer to the fertilizer industry. The company was a pioneer in the field of high analysis water-soluble fertilizers for the flower growing trade during the thirties. These nutrients made possible the industry's application of the fertilizing-irrigation concept.

With various types of proportioning and injecting devices, the flower grower introduces water-soluble fertilizers into the main

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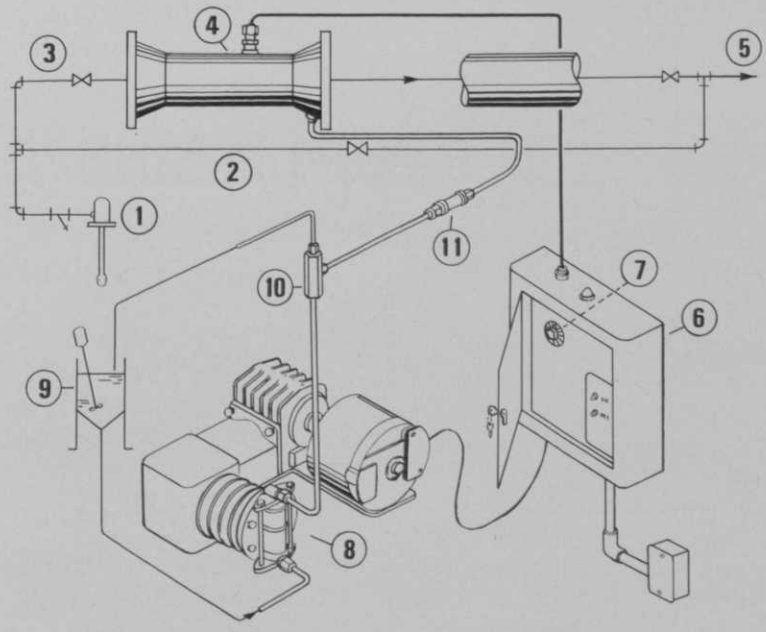

1. *MAIN WELL PUMP*
2. *MAIN PIPE LINE*
3. *BY-PASS LINE*
4. *WATER SENSING DEVICE*
5. *TO IRRIGATION SYSTEM*
6. *TRANSLATOR*
7. *FINGER-TIP RATIO CONTROL*
8. *FEED CONTROL PUMP*
9. *AGITATOR/NURSE TANK*
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THE POP-UP SANDPIPER

Unlike gear or cam-driven rotors, Rain Bird's Rotor Impact Drive sprinklers can pipe sand and dirt from well or lake water straight out again—through large water flow channels. Thus: lower maintenance costs. (Parts for field repair average less than $1.00 per head.)

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Rain Bird Rotor Pop-Ups have a long, wear-free life, and the entire sprinkler assemblies inside are interchangeable. For full details on the range of Rain Bird Rotor Pop-Up heads available, call your Rain Bird distributor. Or write: Rain Bird, Glendora, California 91740

When the name of the game is labor-savings... the name of the product is West Point

The big West Point Aeri-Vac® (top), designed by a golf course superintendent for golf course superintendents, does the three tough jobs best—removing grass clippings, vacuuming leaves and grooming turf. Its powerful vacuum cleans a wide 6' swath and two simple adjustments make it applicable to all turfgrasses. Its big 6 cubic yard trash hopper empties from the driver's seat. Unique rear door permits manual disposal of branches, litter boxes, etc. Universal hitch permits one-man, PTO hook-up. Request Bulletin WP-200 for complete details.

The Hahn Big Boy S-4000 Spreader (right) covers acres of fairway in minutes. It distributes a swath up to 50 feet wide from a 60 cu. ft. storage hopper. Precision selector gauge permits use of a wide range of turfgrass fertilizers. High flotation tires eliminate turf damage and two-wheel design makes the Big Boy easy to trail—smooth, stable to corner. Stainless steel chains and anti-corrosive finishes guarantee long life. Request Bulletin WP-100 for complete details.

And the classics of the turfgrass industry—West Point Aerifiers® —ganged-up in the Grasslan Triplex (left). Cultivates a swath 18' wide. 420 exclusive "one-bolt" spoons open and loosen soil while special "flexi-pads" prevent turf damage. It features "straight-line" cultivation that concentrates on troublesome high-spots and a unique blade-changing design that converts the equipment to a spiker or slicer. Request Bulletin WP-300 for complete details.

The big three are part of West Point's complete line of turf equipment—all designed to convince you that we really care for your turf.

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FERTILIZING WHILE IRRIGATING

continued from page 43

line of his irrigation system. Since timing is a primary concern in the industry, the fertilizing-irrigation method has proven to be a boon to the flower grower. Various flower crops must reach maturity in time to serve seasonal markets (Christmas, Easter and Mother's Day). To do this, the flower grower must have strict control over the growth rate of his plants. This degree of control had been difficult to attain with dry fertilizers. But by injecting water-soluble fertilizers into his irrigation system, the flower grower is able to conduct a continuous feeding program in which minute amounts of nutrients are applied, and growth rate is so controlled that plants are brought to maturity almost on a given day.

Although application of the method has been limited to the flower growing, nursery and agricultural industries, a few systems for combining fertilization with irrigation already are in existence at some golf courses. However, these devices generally have been developed on an individual basis by superintendents and are usually rather primitive and inaccurate. And over the years, many other similar devices were abandoned after much painstaking work brought highly inaccurate results.

Doggett believes his firm has finally developed a system with universal implementation capability and has conquered the "bugs" that have plagued past experimentation. The system consists of a water sensing device that measures each gallon of water pumped from the main well pump. This measurement is carried electronically to the "translator" which directs the feed control pump to automatically inject a pre-set ratio of fertilizer solution into the irrigation system in direct proportion to the water flow. The system maintains accuracy of 1/10 of 1 per cent at all rates of flow and operating pressures.

The amount of space required for the system is minimal: The pipe housing the water sensing device is 34 inches, the feed control pump is about 18 inches by 12 inches and the tamper-proof translator box is 12 inches by 12 inches.

Cost for the fertilization system to serve an average 18-hole course, depending on the capacity of the irrigation system, ranges from $5,500 (650 gallons a minute) to $7,500 (2,000 gallons a minute). In addition, there are installation costs which vary according to the distance of the fertilizer storage tank from the unit and which also are dependent on the elaborateness of the system's housing. A storage tank of good quality with an agitator costs approximately $1 a gallon, according to Doggett. A 500-gallon tank is the maximum size required for a 650-gallon a minute system. Lead time for delivery on the system is about four weeks.

Among the system's advantages claimed by the company are:

- Savings on fertilizer. By applying only the precise amounts of plant nutrients that the turf can immediately utilize, waste is eliminated and total plant food requirement per acre is reduced.
- Reduced equipment and application costs. Save fuel, labor, maintenance and equipment costs by "eliminating tractors, field applicators and operators."
- Reduced storage and handling costs. High analysis soluble concentrates greatly reduce the number of bags to be stored and hauled.

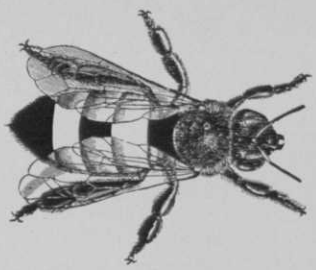
The company's president claims that through these savings, a golf course could make up the initial investment for the Hydromatic system in two to three years. But he is quick to point out what he considers the primary advantage of the system: "The superintendent has control over the rate of growth, color and texture he desires through accurate control of fertilizer application at each watering."

Those in favor of the fertilizing while irrigating method, however, do not go unchallenged. The method is a source of controversy in the turf maintenance field, and many highly respected individuals have strong reservations.

The major argument centers around the belief that water application is not uniform, due to such factors as winds and variance of infiltration rates; and therefore, fertilizer application would not be uniform. Perhaps, the most difficult point to refute is variance in infiltration rates, since it has been found that soil conditions and soil compaction differ from one area to another, only short distances apart. However, Doggett points out that the fertilizer coverage of his company's system is "no better than the water coverage of the irrigation system to which it is hooked up." He feels a good irrigation system, properly set up, should take into account the prevailing wind situation, precipitation, compaction, soil structure and water infiltration. Winds also can blow dry fertilizers about and cause inconsistencies in quantity of nutrients from area to area, he says.

This controversy, as it effects the Doggett-Fison system, will not be settled until actual installations are finally set up and the industry has had the opportunity to evaluate the results. Plans presently are in the works for installations at courses located in Florida, Ohio, New Jersey and New York.

But Doggett has sufficient confidence in the system to speak of future possibilities connected with it. He believes that with some experience superintendents will be able to formulate their own fertilizer mixtures for the system. Also in time, the system may be used for the application of insecticides as well. □



Bee stings can be fatal

Last year about 100 deaths in this country were probably caused by insect stings. Those who think they are hypersensitive should take precautions—their lives may depend on it!

By JOE DOAN

The tragic death last summer of Gerald Dearie, the young superintendent of Medinah (Ill.) CC, as the result of an insect sting, points up the need for taking the greatest possible precaution to avoid being stung by bees, wasps, yellow jackets and hornets. If a person is stung, he should get immediate treatment. As happened in the case of Dearie, death can come quickly from a sting.

It has been quite definitely established that Gerry lived no longer than 45 minutes after being stung on the leg. It was perhaps 15 minutes before he noticed any ill effects. Then, after complaining of an itching in his feet and shortness of breath, he collapsed. He died a few minutes later, after being carried into the Medinah clubhouse. His death was attributed to edema, an accumulation of watery fluid in the tissues. This resulted in a severe drop in blood pressure, disruption of the circulatory system and ultimately heart failure.

His life undoubtedly would have been saved if epinephrine (adrenalin) had been immediately administered. This drug quickly restores circulating blood volume and blood pressure by constricting the capillary bed. Emergency insect sting treatment kits contain epinephrine. In the case of severe shock, it is recommended that the drug be injected both intravenously and subcutaneously (beneath the skin). The treatment kit also contains chewable antihistamine tablets, which are taken to counteract itching and swelling. A tourniquet and antiseptic are also included in emergency kits.

People who are known to be hypersensitive to the stings of the order Hymenoptera (bees, wasps, yellow jackets and hornets) should protect themselves by carrying emergency kits with them. Especially, if, like superintendents, course workers, pros and golfers, there are flowers, clover and fruit trees in the vicinity where they are working or playing.

Hollister - Stier Laboratories, Spokane, Wash., the largest allergy products manufacturer in the United States, makes an emergency kit. It is called AnaKit and is approximately the size of a box of cough drops.

continued

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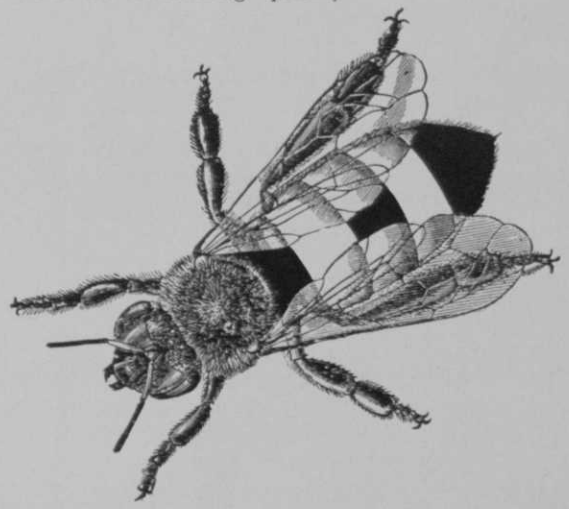

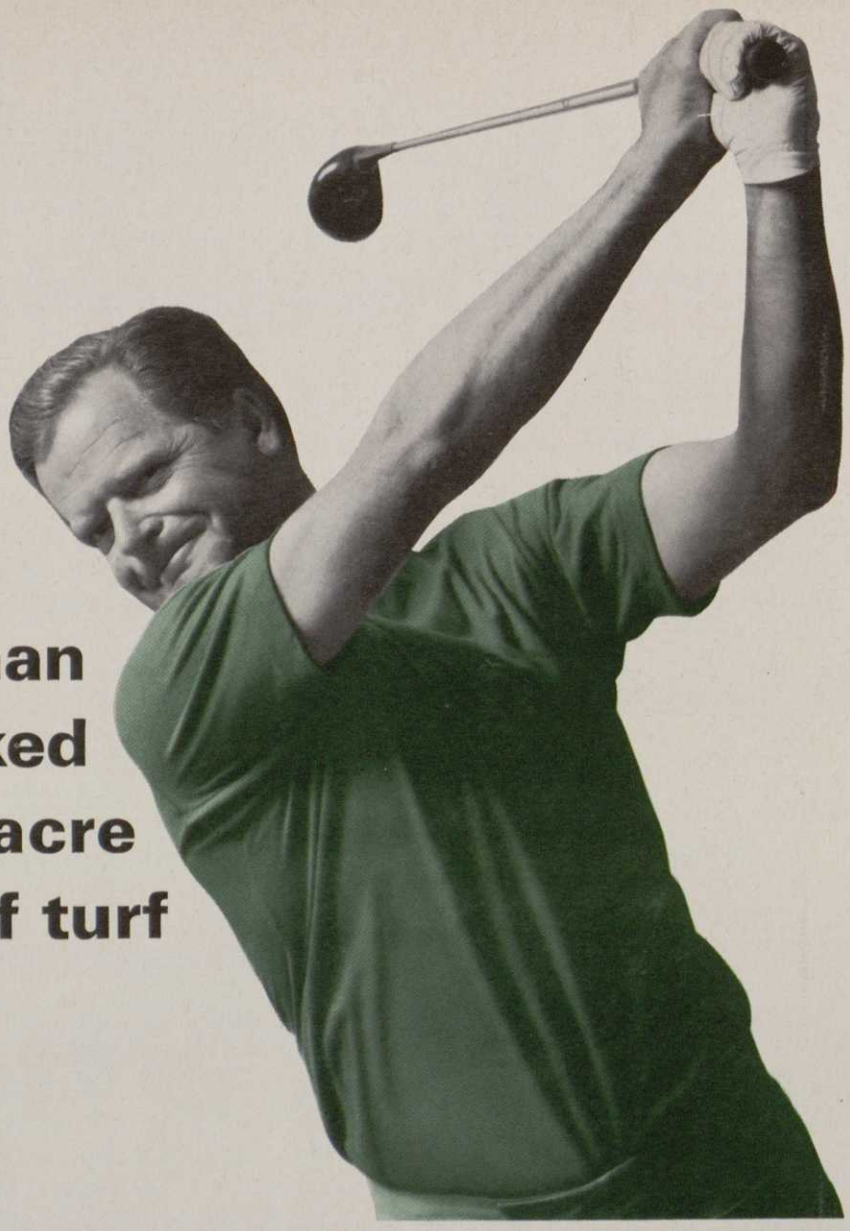

This man just raked an acre of turf

Could you rake an acre of turf, then play 18 holes of golf? He did. You could, too, if you used the Ryan Ren-O-Thin or Mataway. Both are rugged, professional turf-care machines. Compared to hand raking, they make the job easier, more thorough, are kinder to the grass.

The popular Ren-O-Thin, with its 4 h.p. engine, cuts an 18-inch swath. Its high-speed, flail-type blades cut vertically through the grass, removing thatch while leaving the growing grass intact. It also cuts out mature crabgrass and other low-growing weeds. Using the handle in reverse position, it will grind and spread aeration cores.

Big brother to the Ren-O-Thin is the hefty, heavy-duty Mataway power rake. Its husky 10 h.p. engine provides the "muscle" for high-speed, uniform vertical cutting with a 19" swath. It, too, will grind and spread aeration cores as well as cut out crabgrass and other low-growing weeds. Both the Ren-O-Thin and Mataway offer a choice of interchangeable reels for *de-thatching*, *slicing* and *disc spiking*.

For more information about the power rakes and other Ryan products, write for the Turf Equipment Catalog.

RYAN REN-O-THIN

RYAN MATAWAY

The Ryan Ren-O-Thin (left) and the Mataway (right) are two of the turf-care industry's most versatile, efficient power rakes. Both models are adaptable for raking, slicing and disc spiking. They take the "ache" out of raking.

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BEE STINGS

continued

Allergists agree that people are born with immunity to the allergens that are introduced by an insect sting. But after a person is stung once, it is believed that he becomes sensitized to the venom that is exuded through the insect's stinger. To what degree, isn't known. Some people can withstand numerous stings. Others may become hypersensitive after being stung only once or twice.

A sting that causes swelling, tightness of the chest, sneezing, coughing and a lump in the area of the sting should warn the victim to see an allergist or his doctor.

It is known that Gerry Dearie had been stung by insects before his fatal mishap. This has been verified by his wife, who was playing golf at Medinah the day he was fatally stung. She is sure that he never had experienced any extreme reaction to a sting. According to people at the club, he didn't appear to be alarmed at having been stung. According to allergists, some people can be stung 10, 20 or 30 times, even more, without suffering ill effects.

The use of skin tests in determining sensitivity to insect stings is equivocal, some allergists say. They are valid enough for people who are hypersensitive, but for others there is some question of their reliability. Usually, a patient who has suffered symptoms of severe anaphylaxis (allergic reaction or shock) following a sting, will have an immediate wheal reaction upon being scratched with a testing extract. A wheal is a welt or blister, accompanied by a burning or itching sensation. However, some people who are not sensitive to an insect's allergens will register a false positive reaction when a test is given.

A person is made immune or desensitized to insect stings through the injection of antigens that are extracted from whole insect bodies. Doses are small to begin with and are increased to build up immunity. The treatments may last for anywhere from one to three years, depending upon the degree of the patient's hypersensitivity. Treatments of hypersensitive people are said to be 95 per cent effective when they are regularly made.

The best immunity against stinging insects is, of course, to avoid them. Hymenoptera, entomologists say, only sting in self-defense or defense of the nest. They are attracted by floral odors. After-shave lotion, cologne, hair and other cosmetic preparations attract them. No really effective insect repellent has been developed that protects against bees, wasps, hornets and yellow jackets.

Around a golf course, bees usually nest in hollow trees. They usually travel in a straight line and sting only when a person runs into them. Entomologists say that bees are angered by dark colors; light pastel shades don't seem to annoy them. Many times they congregate around unruffled water surfaces. Beekeepers have found that a non-perfumed deodorant or germicidal soap are a deterrent to stinging. But the cardinal rule in the apiary is to move slowly because bees are extremely sensitive to air motion.

Hornets nest in woodlots, orchards, pastures and heavily-wooded areas, usually from one to 10 feet off the ground. Wasps prefer weathered wood. Yellow jacket nests are located in the ground.

Wasps feed on insects which they sting to death, so they usually fly around with their stingers out. They are attracted by juices and saps as well as spoiling food, soft drinks, leather, and even perspiration. Birdbaths are a favorite cooling off spot for them, and many times, eaves are their favorite nesting places.

All of these insects are attracted by bright colors. They live in colonies, and when you see a few of them flying around, you can be sure there is a colony nearby. A golfer who goes into a woods or grove of trees to retrieve an errant shot should be alert to the insect menace.

Insects aren't people hunters. They don't sting for sustenance as do mosquitos, flies and fleas. When they are approached in the open, the best thing to do is stand still or move back slowly and cautiously. If they alight on the body or clothing, forbearance is the best protection. Slapping at an insect or attempting to brush it away puts it on the defense. A stinger lashes out and there is always that grim and rare chance that the insect could deliver a lethal blow. □

Don't take chances

If you or members of your club or their guests think there is a remote possibility of being allergic with attendant dangers when stung by an insect, try to do the following:

- If stung, immediately remove the stinger;
- If more than normal stinging or swelling occurs, get first aid;
- Be certain to tell someone immediately about the sting so they may transmit the information to a doctor if that eventuality should arise.
- If naturally allergic—**Be Careful!**

These are hints that may prevent a tragic occurrence as a consequence of an insect sting. They are only a summary guideline and not meant to substitute for the ministrations of a doctor. It is difficult to know to what degree people are sensitized, so don't take chances.

Superintendents may be wise to clip this page from GOLFDOM and post it where it can be useful in the event of an insect sting.

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At last...a golf sweater that combines quality and price: The Touring Pro 75% mohair and 25% wool for gals. They're priced right, retailing at around $13.95. And they're fashioned-right in the wanted cardigan or V-Neck pullover styles. Colors? You name it from whites to blacks, oranges to olives, reds to blues, maize to brown. What's more, each sweater is packaged in our exclusive new snap open vinyl display sweater bag. If you're a manager of a golf pro shop, send for full details, including our complete catalog. Write now. The Sweater Guys are waiting to hear from you.

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