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An easy way to keep your profits high on golf ball sales is by featuring the Sweet Shot and the Wonderball. National advertising in all leading golf centers has told the story of their great performance to 90% of the country's golfers. These players have been advised to ask their Pros which of these golf balls is best for their style of play.

Sweet Shot—This is the golf ball for the power hitter. Internal compression has been stepped up to a new high with an exclusive, super-charged liquid center. It's delicately balanced for rifle-like accuracy, yet it will come through many rounds of tough play still in top condition.

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Both these balls are wound with the exclusive F-239 vita-life thread, which means they will stay "live" almost indefinitely—and both have long-lasting, vulcanized cured covers.

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WORTHINGTON

WORLD'S LARGEST EXCLUSIVE GOLF BALL MAKER

Sawdust Shows Value As Top-Dressing Humus

By DR. HENRY KAPP

Green Chairman, Haverhill (Mass.) Country Club

I know that good waste has been used in agriculture for centuries but I do know that it is not used as much as it could be used on golf courses.

The practice of removing the grass clippings from golf greens imposes on the greens superintendent the constant problem of replacing necessary organic material. There are a number of substances used to keep the organic content of the son up to good normal growing conditions. Some of these are very valuable, and others leave something to be desired.

Any organic substance that is to be used to condition the soil on golf greens must have at least the following desirable properties: it must be a good moisture absorbent and moisture preserver; it should decompose quickly enough so that it becomes an integral part of the soil and not develop into an unabsorbable layer; it should be weed-free; its particles should be so fine that it can be easily mixed in a topdressing; it should not contain substances which would be toxic to the grass; it should have a certain amount of permanency and not be too quickly dissipated; and it should be easily available and not too expensive. One substance which answers to all these requirements and one which is seldom used on golf courses is sawdust.

Sawdust Qualities

Sawdust will absorb from two to four times its weight in water and retains this water resistant to rapid evaporation. It lowers soil temperature in hot weather and helps to insulate the soil against a too early quick-freeze. Because of its moisture-holding properties it also holds the soluble plant food which is in solution in this water and thereby retards fertilizer leeching. At the Haverhill CC we mix our spring topdressing with sawdust in the fall. In the spring this mixture shows no microscopic evidence of sawdust granules.

We have used it for six years, and a profile of the soil shows no layers of sawdust. It certainly is weed-free and mixes readily with loam and sand. It improves the tilth of the soil by promoting aeration and granulation and thus encourages a more luxuriant and deeper root system.

It acts as a binder in sandy soils and decreases clodding in clay soils. As to the question of the toxic effect of the essential olls, terpens, resins, and tannins, which the sawdust may contain, it has been proved that they are rapidly destroyed by the soil micro-organisms before they do any harm.

The application of sawdust causes some temporary depression of the nitrogen content of the soil because the micro-organisms which proliferate more rapidly by its presence steal the nitrogen for their own body metabolism, but as decomposition progresses, the result is a slow and steady release of this stolen nitrogen. The addition of a little extra nitrogen to the soil is no problem to the greenkeeper. But even normal fertilization will keep the nitrogen content of the soil above the 1.7 level below which mecri-organism activity ceases.

No Soil Acidity Excess

The statement that sawdust produces an excess of soil acidity is an old superstition which has no foundation in fact. Sawdust should not be used as a direct plant fertilizer because, even though it analyzes about 4.2.4 plus carbohydrates, its nutrients are released too slowly to be of quick enough value. Plant food must be used with it. Nevertheless it does help to change the complex plant foods into the simple formulae which the plant can use. This it does by encouraging the proliferation of the beneficial soil microorganisms, which break the complex nutrients down to plant availability.

When freshly applied to the soil, sawdust temporarily upsets the ideal carbonnitrogen ratio, C 10 N 1; but with
ordinary watering, sunshine, and proper
aeration, this normal balance is soon
restored. It increases the carbon content
of the soil and promotes the carbon
dioxide, oxygen exchange which is so
necessary to plant growth.

Sawdust was first used by Manuel Francis about six years ago at the Haverhill CC, and soon after using it we noticed a change in the character of the greens. The surface of the greens lost their hard, upper crust, and a properly played shot

(Continued on page 60)

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The strongest most serviceable Kart made. Interchangeable parts, low upkeep. Balances any weight bag without adjustment. Strong steel construction. Large 14-inch wheels or 11-inch wheels, ball bearings factory packed for five years' service. Two axle widths. Demountable axles, frames, handles. Immediate delivery. Write for information.

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Chinch Bug Control 100% by Chlordane Emulsion

By JOHN C. SCHREAD Entomologist, Connecticut Agricultural Experiment Station, and
A. R. TWOMBLY Supt., Pelham Country Club, Pelham Manor, N.Y.

For years the hairy chinch bug has been a constant threat to better turf. Only bent grasses, young blue grass and fescue were believed to be susceptible to injury by this insect. It appeared during the summer of 1949, however, that old stands of blue grass and fescue in golf course fairways and roughs were being severely damaged by the pest.

Prediction had it in the spring of 1949 that if the season continued as hot and dry in the northeast and other parts of the country as well as it commenced, serious outbreaks of chinch bugs could be expected. Nature gave no lie to the forecast and before early July it was obvious that this season would be one of the worst chinch bug years on record. Now that the season has closed the least that might be said relative to the matter is that the long range prediction was somewhat of an understatement.

In many sections of the eastern part of the United States the Japanese beetle has been acknowledged as the leader among the surface and subsurface insect pests taking an inestimable annual toll of beautiful and valuable greensward. In 1949. however, the situation was in part reversed with the beetle playing "second fiddle" to the chinch bug. It might be well to point out here that weather conditions favoring the Japanese beetle are largely deleterious to the chinch bug and vice versa. A cool wet spring and a wet summer and early autumn will assure a rapid increase and survival of the currently developing Japanese beetle generation; whereas similar weather conditions dis-courages chinch bug multiplication and spread. On the other hand, a long, hot, dry season such as prevailed in the northeast last year is the method nature has chosen for quick and effective reduction of Japanese beetle population and rapid rise in chinch bug infestation.

While pursuing tropical earthworm, "stinkworms," research at Pelham Country Club, Pelham, New York, the junior author became perplexed by an increasing number of irregular reddish brown areas appearing in certain fairways where there was sufficient moisture to sustain the turf despite the dryness of the season.

By August first very little probing of the turf was required to disclose the cause of



Patches on above fairway are reddish brown areas infested with millions of chinch bugs.

the trouble. Teeming millions of chinch bugs were discovered throughout the length and width of several fairways and adjacent roughs. Not all of the fairways, roughs, and tees were comparably infested. Some had chinch bug populations of lesser density than others, but all were inhabited to an alarming degree. The insects were for the most part recently hatched nymphs and adults. When the grass was parted in certain areas the turf appeared to be garnished with red pepper. On closer study countless numbers of extremely small, bright red nymphs could be detected scattering in an attempt to conceal themselves.

Immediate steps were taken to secure quantities of 5 per cent Chlordane dust to be used for control. All efforts met with failure. Delivery of the three or more tons necessary to treat the entire course would require three to seven days and perhaps longer. The urgency of the situation demanded that treatment begin without delay. In consequence it was decided to use Chlordane Emulsion (a quantity of which was on hand) and proceed at once with the task of chinch bug control. Unfortunately we had had no previous experience in control of the pest with emulsions to aid in determining dosage level, time and technique of application, etc. However, it was reasoned that since the insecticide when used as a dust had given such remarkable results it could be expected that emulsion if applied properly would give as complete control as dusts or wettable powder compositions.

Within 12 hours a 50 gallon twin tank sprayer mounted on a 11/2 ton truck was in operation applying 2 gallons of Chlordane emulsion (each gallon contained 4 lbs. of technical toxicant) in 50 gallons of water per acre. A home-made spray boom consisting of 10 nozzles producing a finely divided fan-shaped spray, spaced 18 inches center to center was fastened to the rear of the truck at a height of 30 inches from the ground. Suitable couplings connected the boom with the sprayer. The speed of the truck was maintained at 5 to 6 miles per hour. The spray as delivered by the nozzles criss-crossed so completely at the surface of the turf that every second nozzle could have been removed without endangering the perfect coverage achieved. By the end of the first day 2 fairways and adjacent roughs of approximately 9 acres had been treated.

While the initial application was underway a call was sent out for more emulsion. Within 24 hours six 5-gallon cans were delivered to the golf course and on subsequent days additional quantities of material were obtained. In all, 120 gallons of Chlordane emulsion were used treating 60 acres of fairways and roughs. Because of the difficulty experienced in manipulating the sprayer on the tees and around the greens,



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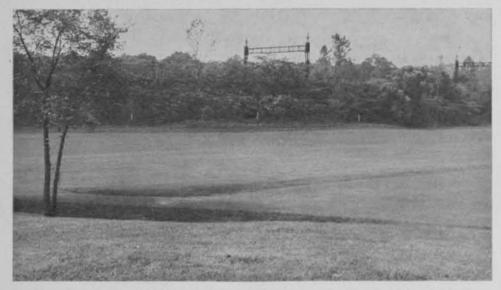
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BUY-THE-BEST!

The Fulname Co.

BUY FULNAME! Cincinnati 6, Ohio



Same fairway shown on page 54 after area had been sprayed with Chlordane emulsion. Complete kill of chinch bugs reported within 24 to 48 hours after treatment with no injury to turf.

these areas were treated with 5 per cent Chlordane dust at the rate of about 5 pounds per 1000 square feet mixed with Milorganite as a diluent and applied by means of a 3-foot Gandy spreader.

A remarkable development of the unprecedented undertaking was the virtual absence of injury to turf by the treatment. It appears to be even more amazing by reason of the extremely high temperatures existing during the days the control operations were relentlessly pursued. At no time was the mid-day temperature below 95°F, and on several occasions it reached 98° to 100°F, and more. Sunshine, prevailing most of the time was accompanied by oppressively high humidity.

The outcome of the work was extraordinary. Within 24 to 48 hours no living chinch bug could be found in any of the treated turf. Control appeared to be 100 per cent in all areas of the golf course. Subsequent examinations of the fairways and roughs revealed no young or adult chinch bugs in any section of the course. An examination of the treated fairways in mid-October showed the turf to be entirely free from chinch bug infestation. It appeared, however, that a third generation had arisen in an untreated nursery of about 15000 square feet. Both newly hatched young and adults were present in great numbers. Injury was developing necessitating treatment with Chlordane emulsion.

A substantial part of the injured turf recovered rapidly with most of the reddish brown areas disappearing completely. Only an occasional spot required reseeding.

Park Officials Need to Know More About Pros

Parks and Recreation magazine, published by American Institute of Park Executives, recently published a summary of replies received from 19 cities answering a questionnaire on public golf operation.

Two of the reporting courses had Gkpr.-mgr., one Pro-gkpr.-mgr., eight have pros and eight do not. Lessons mostly are \$2 for half-hour. Some went as low as \$1 for half-hour lessons. About half gave some form

of free group instruction.

The great increase in free instruction and other services does not seem to support the conclusions Parks and Recreation prints: "A trend apparent in this information is substituting some other kind of management for the golf professional, perhaps mainly for the reason set forth by one city: 'While we were paying him (pro) \$100 a month and giving him a house, his income from the golf shop was netting him in the neighborhood of \$5000 a year. He could make another \$2000 or \$3000 on lessons. It seemed that every time we wanted him to do something, or he was needed at the golf shop, he was out giving lessons or playing golf."

The comment doesn't indicate the knowledge of management that might be expected of a park official. The estimate of \$3000 from lessons, at \$2 a lesson, would mean 10 lessons a day thru a 150 day season and no rain-outs. To net \$5000 a year in the shop would mean that the pro had to sell about \$25,000 in merchandise and have low operating costs. This would require the

pro shop averaging \$160 gross a day for each of the 150 days of the season when the public course in the northern and central states is getting much play.

If the reporting park board doesn't pay for the pro's help, chances are the pro who is criticized has to pay considerably more than \$100 a month for his assistant.

In more than 22 years of close contact with the golf business we have yet to see a public course pro get rich, although we have seen many public course pros handling their jobs, with freedom from political interference and understanding cooperation of park board officials, so the public golf operation has become one of the most popular public recreation operations and one of the few which often is self-supporting and which pays for the improvement and extension of facilities.

The growth of public golf and the increased demand of the public for facilities and personnel approximating those available at private clubs means that a well qualified professional is essential at the public course that has high type of park board executive and operating management. Already the public and private courses are in competition for first class pro business talent. That sort of a businessman isn't going to work where there will be resentment of his superior services making money for him, as well as attracting and pleasing the public.

There's a whole lot of room for better understanding of pro department operations by park officials, and such understanding will produce the sort of public endorsement of park operations that the

park boards seek.

Reach Compact Course for Philadelphia Park

A retired soap and dye manufacturer from Chicago helped to break a long-standing policy in Philadelphia recently when he was given a concession for a streamlined nine-hole golf course in Fairmount Park, the first time that publicly-owned land in that city was ever used for such a purpose.

The course is designed to fill an urgent need in Philadelphia for a place where the average golfer may play. There are only three public courses in the city and the demand for additional facilities has prompted the Commissioners of Fairmount Park to grant a private concession.

The concession was made to Louis L. Rittenhouse, of Merion Station, Pa., who was formerly in the soap and dye business in Chicago. He is building the course under the Milton Reach patent for a different type of day and night golf facilities. Rittenhouse has exclusive right to the patent in Pennsylvania, New Jersey and Delaware.

The first Reach course was built in Springfield, Mass., and other units are in

At Last! LOW COST CRAB GRASS CONTROL

10% TAT C-Lect controls crabgrass and fungus in putting greens.

13% TAT C-Lect Fortified

simultaneously controls crabgrass and weeds on fairways, aprons, tees.

Accept No Substitutes!

These outstanding concentrates meet all your requirements, spell real economy. With 10% TAT C-Lect you keep a 5,000 sq. ft. green crabgrass-free

at only 57c per treatment!

With 13% TAT C-Lect Fortified you kill crabgrass and weeds simultaneously on fairways, aprons, tees, for only 25c per thousand square feet per treatment—

less than \$11.00 per acre!

10% TAT C-Lect is a new high concentration of solubilized phenyl mercuric acetate — at new low cost. 13% TAT C-Lect Fortified is the only product containing phenyl mercuric acetate and a specially coupled 2,4-D weed killer in the same solution. Check these prices — see how they fit into YOUR course maintenance budget!

10% TAT C-Lect

Single gallon	\$ 13.90		
4-gal. case	11.12	per	gal.
5-gal, drum	9.45		

13% TAT C-Lect Fortified

Single gallon	\$ 16.00		
4-gal. case	12.80	per	gal.
5-gal. drum	10.80	per	gal.

Write for new comprehensive circular.



O. E. LINCK CO. Inc.

Clifton, N. J.



Snack bar to be built on 22 acre area at Newark (N.J.) airport where Reach-patent compact golf course and 45 tee golf range is being built by Airport Golf Course, 586 Newark ave., Jersey City, N.J.

operation and planned for various sections of the country.

A 12-acre plot in Fairmount Park was made available to Rittenhouse. He obtained the lease from the Fairmount Park Commission on agreement to spend an estimated \$70,000 in grading the land and erecting the necessary equipment, which includes two refreshment stands and a comfort station.

As rental, he will pay 20 percent of gross receipts from the golf course and 10 percent of the gross from food and sales. The entire project is to be surrounded by a six-foot high steel wire barricade and is floodlighted for night playing.

Also included in the lease is a recapture clause under which the commission may take back the property on 60 days notice at any time after the first year.

In that event, the commission would pay the operators 80 percent of the \$70,000 construction cost at the end of the first year, 60 percent at the end of the second year, and so on. The project becomes the property of the City of Philadelphia at the end of five years. Playing fee per round is to be \$1.

John B. Kelly, a member of the Park Commission and a well-known sports and political figure in the Philadelphia area, originated the idea of establishing such a course in the park after he conferred with Rittenhouse and saw the original Reachpatented course in Springfield.

Kelly's enthusiastic report led to the appointment of a three-man committee among the commissioners to study Rittenhouse's project. All gave their full approval. The other members of the committee, which included Kelly, are Raymond Rosen and Jay Cooke.

To forestall any possible criticism for the leasing of public land to a private, profit-making organization, Kelly pointed out that the Park Commission now loses money on all its public links and that Rittenhouse's venture might be a chance to pull the park's recreational facilities out of the red.

Rosen said neither he nor the other members of the Commission believed they should gamble with the public's money and that whether the venture succeeds or fails, it will have cost the taxpayers nothing, since Rittenhouse is footing the bill. The backer, in turn, was very optimistic about the success of the unique course which is lighted for night play.

Redmond Puts Showmanship in Golf School

Jack Redmond, the globe-trotting trickshot performer, has settled down in his golf school at 4 West 40th St., New York City, where he and his associates, Duncan Barr and Helen Hicks have crowded lesson books.

They've put showmanship into this teaching enterprise.

One of the gimmicks is a large mirror in which the pupil can get a clear image of the way he is and the way he should be in his swing. Jack says that by associating these views of positions with the feeling of the positions the pupil gets a deep and under-

Tiger Cushion

ALL RUBBER-SPIKE TRAFFIC FLOORING INSTALLED IN THE OLDEST AND THE NEWEST GOLF CLUBS

- Superior to any flooring as a durable, resilient, colorful product, for golf spike shoe traffic.
- 2. Floor adherence of own weight WILL NOT BUCKLE, SHRED, CURL.
- GAUGES: 1/4", 5/16", 3/8". COLORS: Terra Cotta, Green, Black, Brown. Plain or mottled shades. LENGTHS: Up to 30'. WIDTHS: Up to 4'.
- 4. CUT TO SPECIFICATIONS FREIGHT PREPAID.
- 5. PLAIN OR FACTORY BEVELED EDGES.
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Where no vegetation whatever is desired. Penetrates deep down to plant roots and kills. Sterilizes the soil, preventing normal sprouting of wind-blown seeds. Weeding the thorough, modern chemical way eliminates backbreaking toil and saves the cost of many labor-hours.

E. W. T. SELECTIVE WEED-KILLER (2-4-D)

Highly recommended for maintaining beauty of lawn and fairway. Works its way down into the roots of brush, dandelion, plantain, poison ivy, ragweed, sumac and other obnoxious plants, but does not injure most turt grasses.

Please write for descriptive literature explaining how these tested DOLGE products can best be used for your weeding requirements.

The C. B. DOLGE Co.



Here's section of Jack Redmond's golf studio where movies of the student are projected and studied by pupil and pro. Left—Jack Redmond. Right—Duncan Barr.

standing idea of swing routine that words alone can't give.

Another feature of the school is motion picture instruction. Lighting arrangement makes it possible to get clear, sharp movies of the pupils. Then the films are projected in a special room where the pupil can watch in comfort and have the lesson of the film fully explained and demonstrated.

Redmond says that what this school has taught him is that there's a lot of room open for the development of the indoor golf school beyond the equipment of nets and mats. "Supervised practice is one of the greatest markets for the indoor school and a logical means of developing more play and business for the home club pros," says Redmond. "The pro is expected to teach in a half-hour or an hour something that the pupil may not practice for another week and by that time he's forgotten just what the pro was trying to get him to do."

"I am confident from our experience with this school that the more intensive use of golf indoor practice and 'refresher' lessons by the businessman golfer are going to be a stronger factor in better health and better scoring as the modern indoor school idea continues to grow."

SAWDUST SHOWS VALUE

(Continued from page 52)

could be played onto the green and not necessarily to the approach to the green. We could keep our greens fast and true putting, and yet soft. Our standard top-dressing mixture is equal parts of loam, of Number 3 sawdust, and of sand; but this may be varied in accordance to soil conditions. When discussing the use of sawdust mixed topdressing with course superintendents, I have met a great deal of skepticism as to its value, but if they

